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THE FIRST CONSOLIDATED GOLD MINING COMPANY OF NEDERLAND, COLO.

CORRECTION.

In the JOURNAL of October 13, containing an engraving of The First National consolidated Gold Mining Company of Nederland, Colo., in the article the Eastern office of the company was correctly placed at Lexington, Ky., but in the engraving it was, by an oversight, stated to be at Louisville, Ky.

In the West the company and its operations are too well known to have any inconvenience caused through such a misprint; but in the East a temporary misunderstanding might result, and hence this correction. We state once more, therefore, that the Eastern offices of this company are at Lexington, Ky., at which place any one of the officers may be addressed.

THE INSTITUTE PUBLICATIONS.

For an account of the proceedings of the recent meeting of the Institute of Mining Engineers, we refer our readers to the official report in another column. We shall take an early opportunity to say a few words concerning the delightful excursions and social entertainments which made last week memorable in the history of the Institute. At present we have space to mention only the action taken by the Council and announced at this meeting, concerning the publication of papers. This action was the result of the notice given long ago and reported last May by the proprietors of the ENGINEERING AND MINING JOURNAL, terminating the contract now existing between them and the Institute. Since this notice was intended not to embarrass the Council, but merely to leave it free to select some other plan, we continued the publication of papers under the existing arrangement, as an accommodation to the Institute, until another arrangement should be matured. This has now been done; and after the 31st of December next the papers will be furnished to members in advance sheets from the Volume of Transactions as rapidly as they can be thus published. It is not now intended to print and circulate them in advance of the meeting; and we trust that plan will never be adopted. Its one advantage is, that it enables members to prepare themselves for debate. Its disadvantages are that it tends to decrease attendance and smother spontaneity at the meetings, and to diminish the number of papers while augmenting the volume of discussion. A few subjects would be worn threadbare by half a dozen set of papers in the guise of "remarks" on each; and members not interested in these specialties would have timely notice to stay away.

The system now about to be tried will furnish each paper, with the discussion upon it, to all members, in complete form, as soon as the author and speaker can prepare it for the press. This has not been practicable for long papers in our columns without the issue of printed supplements, which the Institute could not afford to pay for, and the ENGINEERING AND MINING JOURNAL, publishing the papers gratuitously, could not afford to "throw into the bargain."

As an offset to the greater convenience of receiving the papers in complete form, the members and associates will no longer (after December 31) receive the ENGINEERING AND MINING JOURNAL, unless they subscribe for it, like other people. We extend our sincere sympathy to them in this affliction, and beg to remind them that a sorrow which they can cure with $4 is not beyond remedy. The pressure upon our columns being greatly relieved by the change, we shall be able to offer to our subscribers a larger variety of technical information and discussion. The papers of the Institute rank very high in professional literature, and we shall make free use of them for the benefit of the majority of our readers, who will not otherwise have access to them. But many of them are capable of a condensation which, in the official medium of publication, could not be permitted; while some of them may well be passed by with such notice as will enable special students to seek them out in the official volume. The space thus gained we shall fill from the abundance of fresh and interesting material which now crowds to bursting our editorial pigeon-holes.

The members of the Institute were largely our subscribers in former days, and owed their membership, indeed, to the knowledge of the Society obtained through our columns. We shall doubtless retain them among our patrons, and it will be our aim to make the ENGINEERING AND MINING JOURNAL indispensable to them all. *

PROFESSOR BLAKE'S OPINION.

In a letter dated Eureka, Nevada, Oct. 6, Professor W. P. BLAKE informs the New York *Tribune* that the recent decision of three United States judges in the Eureka-Richmond case involves a rendering of the term "lode" which will not be accepted by either practical or theoretical miners. He says it is "an innovation, a new and convenient heresy, untenable and absurd"; and that "it is fraught with confusion and litigation, and opens the door to the wholesale sequestration of miners' claims." And he adds (whence, we venture to say, the special interest he takes in the question) that "a similar modification of the well-known use and meaning of the words 'lode or vein' was invented and used in New York last winter in defense of the sale of the Emma mine."

All these opinions, and some of these phrases, reappeared last week at Amenia, in a paper before the Institute of Mining Engineers, in which Prof. BLAKE attempted to state, as he also did in his *Tribune* letter, the theories of the opposing experts in the recent litigation. In his paper, as in his letter, he pronounced the court's construction of the terms "vein," "lode," and "ledge" in the law to be "a new and convenient heresy"; but the developments of the debate at Amenia will probably lead to some modification of that rash statement. For it speedily appeared that Prof. BLAKE had not read the testimony in the Eureka-Richmond case—a little preliminary to the correct judgment of it which he will now doubtless perform, to the great advantage of his own reasoning. When his paper shall be published, we shall give to its arguments a candid consideration. Meanwhile, courtesy would keep us silent, but for the fact that Prof. BLAKE, before appealing to a professional tribunal, has thought proper to pronounce a dogmatic opinion in the columns of a daily newspaper. It is this opinion, and not the wiser and more moderate one which a better knowledge of the facts will lead him to express, that we now criticise.

Prof. BLAKE's letter shows that he is aware that the court did not attempt to fix or alter the geological definition of the terms "lode," "vein," or "ledge," but only to determine their sense "*within the meaning of the acts of Congress.*" He must be aware also—at least, everybody else is—that the law follows popular usage, rather than technical distinctions. He should know, moreover, that the law was intended to cover, and in practice does cover, all kinds of metalliferous deposits, except placer and hydraulic mines. A careful perusal of the decision (even without the testimony) would have shown him that it is based on the proved and admitted facts of this particular case; and a study of the evidence and the maps, when he comes to that part of his examination of the subject, will reveal to him that among the facts of this case are two or more tracings of continuous ore, connecting the "distinct masses" of which he speaks. It will then dawn upon him that the significance of the question whether the limestone zone of Ruby Hill is to be held as the legal "lode," is simply that it determines a general course and dip for the definition of legal rights—without which there would be as many lodes, courses and dips as there are threads, bunches, cleavages, joints, and caverns in the limestone.

Finally, Prof. BLAKE may ascertain, either by an examination of the literature of the subject or by the shorter method of reading the evidence in this suit, that the practical conception of a lode or vein which he regards as new and mischievous is in fact older than any other; that it irresistibly pervades the usage of all authors; and that, as long as miners continue to be the pioneers in advance of the technical classifications of men of science, so long they will give this name to the zones of rock which they exploit as veins, without waiting for the hair-splitting definitions of the discordant schools.

We should be glad to know what is the "well-known use and meaning" of the term "lode" which Prof. BLAKE thinks has been violated. If it is the definition of a true vein or fissure-vein, as given in the books, does he mean to insist that no other kind of vein can be acquired by patent under the United States law, or that the patentee of a vein, not a fissure, has no rights which experts are bound to respect? Or if, on the other hand, he would include in it contact-veins, bed-veins, stockworks, impregnations, and all other recognized classes of ore-deposits, does he overlook the fact that the deposits of lead-ores in magnesian limestone are now declared, even by COTTA, to be a separate class?

The mere fact that the pre-existent country-rock is, within certain boundaries, included as a part of the ore-deposit to which, under the general term "vein," the law gives the miner a right, should not alarm Prof. BLAKE. Half the tin of Cornwall, more than half the lead of the world, nearly all the copper of this country, at least, and probably all the mercury of all countries, are produced from zones of altered and "mineralized" country rock. Let the critic be reassured. The "confusion" which he fears is not a wide-spead or a hopeless evil. In fact, with a little patient inquiry, he can cure it himself. *

AFFAIRS IN ARIZONA.

Staff Correspondence of the Engineering and Mining Journal.

The advancement of Arizona as a mining territory has been very marked during the past year. Doubtless, much is due to the approach and completion of the Southern Pacific Railroad, which, on the 9th of October, sent its first train of cars across the Colorado River into Yuma; but it is not to be denied that the sterling merit of many of its mines, such as the Silver King, Peck, Vulture, Hackberry, McCracken, Ostrich, Castle-Dome, and Tiger, would alone serve to force the Territory into prominence in course of time, even if communication were as difficult and tedious as ever.

In her development, Arizona has had many difficulties to contend with. The country was, and is supposed to be, not only a most desolate and barren one, but subject to insufferable heat. While these peculiarities are in a measure true, yet they have been much exaggerated. The valleys of the Gila and its tributaries possess many hundred square miles of the best agricultural lands, and along the course of the lower Colorado the country is far from being a desert. Inland, and especially in the center of the Territory, there is beyond doubt immense areas of barren and valueless uplands. But this barrenness does not affect its mineral resources. The numerous small spurs and isolated mountain ranges, which traverse Arizona from north to south, are proving to be well filled with ore deposits of the first order, and this one fact being well known, neither barrenness, heat, Indians, tarantulas, or desert will interfere with her advance. The energy of her American citizens has proven beyond cavil the existence of rich mines; the attention of capital has been drawn to these, and help has at last come. This will now continue until Arizona is as well known by its production of bullion as any other part of the West.

The *Sentinel* (Yuma) of Oct. 13 prints a list of the new quartz mills bought or erected during the last six months, which more than anything else shows that there is life and progress in that Territory. We reprint the list entire:

	Stamps.		Stamps.
Champion (steam drop)	2	Silver King	5
Townsend & Co. (5 already up)	10	Peck (originally Black Warrior)	10
Signal	10	McCracken	20
Hackberry	10	Walnut Grove (10?)	5
Dean	10	Knowles (Empire Flat)	10
Masterson's Turkey Creek (No. of stamps not mentioned)	—		—
		Total	92

"Of the mills which have been in operation since and before last spring we can recall the following:

	Stamps.		Stamps.
Ostrich (it may be 10)	5	Aztlan	5
Tidwell	3	Constancia (now Luke's)	10
Frederick's	10	Crook (10?)	5
Mineral Park	5	Bill Smith's	10
Greenwood	10		—
Morrill & Ketchum	6	Total	69

Besides these are the forty-stamp mill of the Vulture, Cormorant mill five stamps, and a few more in the Wallapai District.

Another interesting fact in the development of Arizona is that attention is at last being drawn to its rich placer deposits, and principally those lying along the course of the Gila River. On this latter stream water is abundant, and rich bars exist which can be made the subject of most successful enterprise. Arizona is known to possess extraordinarily rich gulch deposits of gold, which ere this would have fairly rivaled those of Montana had water been abundant. Should success be encountered on the Gila, doubtless some experiments will shortly be made in the dry cañons of the center and northern districts.

At present all the high grade ore produced in Arizona is shipped to San Francisco for reduction, there being no smelting works of any kind in the Territory. The exact amount of this class of mineral now being produced is difficult to ascertain, but it cannot be less than $500,000 a year in value. It is necessarily of a very high grade (consequently over $300 a ton), [and much running up to $1,000 and over. In fact, the first-class ore and the concentrates (from Frue tables) now being] shipped from the Silver King average in value over $1,500 per ton. As the railroad has now crossed the river there should be reduction works at Yuma or some central point. The class of ore being produced now is highly quartzose, but there are districts close by the river where vast deposits of lead and copper ore exist, which would furnish a sufficient basis for very extensive smelting. This opening is one that we think will bear close examination by capitalists. The supply of ore will hereafter increase very rapidly, by reason of the general cheapening of supplies of all kinds, and on account also of the abundance of capital seeking investment in the Territory.

Our mining summary this week is rather full of Arizona mining intelligence; and certainly that distant Territory merits more than a passing notice. As the American prospector moves southward toward the fabulous precious metal deposits of Mexico, the reports he sends back are liable to be considered somewhat more roseate than circumstances would warrant; yet much of what has been said and written of that border-land would be warranted by a calm examination of its resources. Stripped of the glamour which distance, inaccessibility, and ignorance always throw over a new land, and considered without regard to the great mines known to exist so short a distance over the border in the true wonderland of Northern Mexico, Arizona unquestionably can boast of mines equal to those in any other part of the West. The belt of deposits which has made Nevada is there continued. There is no greater lack of water than in the central and southern parts of that latter State, and, as for heat, if the mines exist, neither heat nor cold will drive away the worker or the capitalist.

THE NEW TELLURIDE MINERALS.

Staff Correspondence of the Engineering and Mining Journal.

Dr. Genth, who more than any one else has made a study of the tellureted minerals of Colorado, has recently put forth a small pamphlet on the subject, referring to the more recently discovered minerals of that class, which contains some investigations of great interest. The developments in this exceedingly interesting bed of mines have been of no slight importance since August, 1874, when the same gentleman published his first pamphlets on the Colorado tellurides; new combinations have been found, and new varieties of the already known minerals of this element; and in addition, the occurrence of several other elements more or less rare have been shown.

The native telluriums more recently examined have been from the Keystone and Mountain Lion mines in Magnolia district. After mentioning the more common crystallographic forms in which the mineral occurs, Dr. Genth mentions a species existing in thin sheets or plates mixed with the ores, and associated with a peculiar greenish vanadiferous mineral (roscoelite). After deducting 8·9 per cent. of quartz, the following analysis was obtained:

	Per Cent.		Per Cent.
Gold	0·60	Mercury, oxides of aluminium, magnesium, and potassium	1·15
Silver	0·07		
Tellurium	96·91		100·00
Vanadium, sesquioxide (V_2C_3)	0·49		
Oxide of iron	0·78		

We conclude from the remarks made in connection with this determination that Dr. Genth considered the gold, silver, mercury, and iron to have been derived from particles of Calaverite, Coloradoite, and pyrite, which it was impossible to separate from his specimen.

Another variety of the native element, which was discovered by Mr. Theodore Berdell in the Mountain Lion mine, occurs in flat plate-like masses. It has a dark gray color, is almost lusterless, and has a columnar structure at right angles with the plates, looking not unlike an iron matte. Though under the magnifying glass even the mineral shows great uniformity, yet Dr. Genth does not regard it as a new species, but simply as a variety of the native element. His analysis showed the following composition:

	Per Cent.		Per Cent.
Gold	1·38	Silver	0·25
Tellurium	55·86	Silicic acid	34·72
Alumina and oxide of iron	6·15	Magnesia	0·17
Lime	0·48		99·01

Concerning Coloradoite (telluride of mercury) Dr. Genth gives the following description and analysis:

Not crystallized, without cleavage, massive, somewhat granular. Fracture uneven to sub-conchoidal. Hardness about 3. Specific gravity 8 627. Luster metallic. Color iron black, inclining to gray, with a faint purplish hue; frequently tarnished with purplish, blue and green colors.

Before the blow-pipe in a tube slightly decrepitates, fuses and yields an abundant sublimate of metallic mercury, also drops of tellurious oxide, and, next to the assay, metallic tellurium. On charcoal gives a greenish flame and white sublimate. Soluble in nitric acid.

Though unable from the specimens sent him to obtain the perfectly pure mineral, Dr. Genth considers that the variety has the composition Hg Te, corresponding with that of cinnabar (sulphide of mercury) and Tremanite, and containing 60·98 per cent. of mercury and 39·02 per cent. of tellurium. Specimens from the Keystone and Smuggler Dr. Genth found to analyze as follows (deducting quartz and gold):

	Smuggler. Per Cent.	Keystone. Per Cent.
Quartz and gold	6·36	46·83
Mercury	55·80	52·28
Silver	2·42	....
Copper	trace	....
Zinc	trace	....
Iron	1·35	2·44
Tellurium	36·24	42·95
Sesquioxide vanadium	....	0·70
Magnesia	....	0·11
Lime	....	0·84
Potash and soda	....	....
	99·27	99·32

From a specimen of Calaverite from the Keystone Mine, Dr. Genth has calculated the composition of

$$(\tfrac{1}{6}Au\ \tfrac{1}{6}Ag)\ Te_4$$

corresponding to the following percentages:

	Per Cent.
Gold	39·01
Silver	3·06
Tellurium	57·93
	100·00

Dr. Genth finds tellurite (tellurious oxide) in fissures of the native tellurium from the John Jay Mine, and in the same association in the Smuggler and Keystone, in minute white, yellowish-white, and yellow crystals, mostly prismatic.

Magnolite, a new mineral, found in the upper decomposed parts of the Keystone Mine, is stated by Dr. Genth to be the product of the oxidation of Coloradoite. It appears in very fine needles, and often gathered in tufts around a globule of native mercury, color white, with a silky luster. The composition is Hg_2TeO_4.

Ferro-tellurite is another of the new minerals. It occurs as a crystalline coat

ing on quartz associated with native tellurium. Dr. Genth gives the composition as probably Fe TeO_4, and reports the following result of a preliminary examination.

	Per Cent.
Iron	41·01
Nickel	0·72
Tellurium	4·06
Sulphur	41·73
	87.52

leaving 12·48 per cent. for oxidation. The specimen giving this analysis was not the pure mineral.

The most interesting of Dr. Genth's investigations on these Colorado tellurides is that devoted to the greenish quartz found so frequently in Magnolia and elsewhere. This mineral has not yet been found pure, but as the coloring matter of quartz. About 150 grams of the latter were pulverized, and after the silica was separated, the remaining mineral was found to be an admixture of native tellurium and Calaverite in the following proportions:

	Per Cent.
Native tellurium	55·4
Calaverite	38·5

The green quartz which was left was found to contain:

	Per Cent.
Quartz	79·38
Tellurium	1·05
Gold	0·03
	80·46

This leaves for the green mineral about 19·5 per cent. Dr. Genth found on analysis that this green material contained (after deducting quartz) 56.74 per cent. of silicic acid, 19 62 per cent. of alumina, 7·78 per cent. of sesquioxide of vanadium, trace of manganese, 3·84 per cent. of oxide of iron, 2·63 per cent. of magnesia, trace of lithia, 0·94 per cent. of soda, 8·11 of potash, and some water; and regards it as a variety of roscoelite, in which the greater part of the vanadium is replaced by aluminium.

We conclude from this that the green coloring matter which has attracted the notice of so many in the Colorado tellurium district, and which has been widely regarded as a rich indication, is in itself perfectly barren of gold and silver, but is often associated with tellureted minerals of these metals.

MINING NEWS.

Staff Correspondence of the Engineering and Mining Journal.

MONTANA AND IDAHO.

The Helena Reduction Works (lead smelting) have started up once more. It is hoped and thought that this time they will continue successfully in operation.

An occasional correspondent of the *New Northwest* contributes the following odd items: Walter's new ten-stamp mill on the South Boulder has begun crushing ore from the Mammoth Mine. The Leviathan and Grand Central mines (free gold) are producing. The Broadway at Silver Star is looking well. Some ore from the Pipestone Mine was recently hauled over to Butte for crushing.

The Montan Company, owning the Krom Concentration Works at Jefferson City, which has been idle for some time past by reason of indebtedness, is to be started up once more. The outstanding claims will all be settled.

The Dexter mill, and a number of mines owned with it, were sold out at auction on October 6, and bought in by W. A. Clark of Deer Lodge. The mill will be reopened in a week, and running as usual.

The Monroe mill, at Dewey Flat, has been closed down for the winter. The cause of stoppage was a disagreement between the miners and mill-men.

The Butte *Miner* reports an encouraging progress at Silver Lake District, between Butte and Philipsburg. The Silver Moss and another recently located vein are being worked with good results.

The recently discovered coal vein on Lost Creek has been opened by two inclines. The vein lies nearly flat, and carries 6 feet of coal, of which about 40 inches are said to be of good quality. It is to be tested for domestic and furnace uses.

From the Butte *Miner* we condense the following items: The iron ore now used at the Glendale furnaces is being mined at Butte. About twenty-five tons weekly will be shipped for this purpose. After sinking through fifty feet of ground on the Burlington. good ore has again come in. The Olin Concentration works, under lease to Purvine & Barnard, are handling about eighteen tons of ore daily, and turning out nine tons of clear mineral ready for the smelters.

The same paper speaks as follows of the Glendale Reduction Works, recently opened:

"The works as they stand consist of two water-jacket cupola furnaces, one reverberatory furnace already finished, and another to be used in smelting copper, now in course of construction. The power is furnished by a 28-inch Leffel turbine wheel. By this wheel are worked a Blake crusher, a set of Cornish rollers, a rotary force blast of immense force, and the different lathes, etc. that are occasionally used. By the crusher and rollers the iron ore used as a flux for the copper is pulverized. When sufficiently fine it is mixed with the copper ore which is so soft as not to require crushing, and the mixture is then ready for the furnace. From the furnace there are three spouts, one for the metal and two for slag.

"The small furnace only, has as yet been used. The large one has been finished and ready for work for some time, but the 50 or 60 tons of ore necessary to keep it running could not be delivered with the teams engaged in transportation. The contract of supplying the needed amount of ore has been taken, and the work of delivering it will begin this week, when the large furnace will likely be started. In working the small furnace 600 bushels of charcoal per day are used; but the large one will consume somewhere between 1,200 and 2,000 bushels of charcoal every 24 hours. The yield of the small furnace is about eight tons of bullion per day."

South Mountain District, Idaho, though at present deserted, is not by any means dead. The mines are deposits in limestone carrying a heavy percentage of lead, and in time will be reopened and worked.

The Silver City (Idaho) *Avalanche*, in making its usual weekly review of mining news, has the following items:

For the four weeks ending October 6, the bullion shipments from Owyhee have footed up $40,000. Sinking on the Golden Chariot is progressing steadily, the work being now considerably below the 14th level. The Empire is being troubled somewhat with water. In the Belle Peck the main tunnel is being driven towards the hanging wall. The Poorman is still idle. The Potosi is producing well and developing plenty of ore. The Black Jack mine is employing 20 men, turning out 7 to 10 tons daily. Thirty-four tons recently crushed from the Illinois Central yielded a bar worth over $14,000. The Buffalo Company mill, recently completed at Atlanta, is reported in successful operation and treating 7 to 10 tons daily. The Buffalo Mine is at present idle, and will continue so until the large quantity of ore on hand is disposed of. The Monarch and Last Chance on the same camp are looking very well, and yielding steadily. Reports from Atlanta represent that town as rather quiet still, but progressing favorably.

ARIZONA AND NEW MEXICO.

Thirteen tons of rich ore were shipped early in October to San Francisco from the Pinal mines.

The new concentrator and agitator at the Picacho mill is effecting a large saving of gold in that mill.

The Aztec Company is contemplating the erection of reduction works on the Sonoita River.

The Silver King Mine maintains its splendid reputation well. On October 2 eleven tons were sent away, and the same amount on October 9. The last two lots of concentrates, about 10 tons each, sold for $15,000 each.

The *Sentinel* gives the following interesting items regarding the mines in Carga Muchaco District, just west of the Colorado, in California, and which is promising to become of considerable note:

"The Madre, Padre, and Carga Muchaco lodes, about ten miles from here, are now being thoroughly opened by F. E. Ogilby, agent of a London syndicate which has taken hold of the property. So far the developments have been very gratifying. The mines are situated at a distance of some 6½ miles from the Colorado river, and in a district entirely destitute of permanent water. A mill site has been selected on the bank of the river, just where the railroad strikes it, about five miles below here. Between this site and the mines lies a natural wagon road, offering no difficulties for the construction of a narrow gauge railroad. A proposition is now entertained, and surveys for it are being made, of pumping water from the river through pipes to the mines, and of locating the mill on the lode: pumping water is figured as cheaper than hauling quartz, even by rail. Considerable quantities of ore have been shipped to San Francisco, and run through the syndicate's new mill, which was lately set up for testing it before shipment. The yield was satisfactory, and exceeded representations made by the vendors of the property. The new mill is one of ten stamps with power for twenty. It will be shipped down as soon as its site shall be determined, and the mines shall have been sufficiently opened to insure extraction of a constant supply of ore for it. The proximity of these mines of the Southern Pacific railroad, 1½ miles, has materially facilitated their development."

One of the newest and most promising of recent enterprises in Arizona is the recommencement of work on the Empire Flat mines. These, says the *Sentinel*, were among the earliest discoveries in Arizona. The ore produced is gold quartz and copper minerals, and exists in great abundance. A testing mill of 10 stamps, with concentrators for the copper ore, has just arrived on the ground, and will be immediately set up.

A correspondent of the *Citizen* of Tucson has the following regarding the district in which is the celebrated McCracken Mine:

"There is probably no more busy place in Arizona to-day than along the Big Sandy in the vicinity of McCracken Hill. Near the summit and passing clear through the hill is the vast mass of mineral, silver bearing rock forming the McCracken lode. On the east side of the summit, the Signal Mining Company is busy at work, developing its claim, building roads and contrivances to hoist ore, etc., while on the west side the Senator Consolidated Company is at work on the original McCracken claim. From the mines to this place, the site of the mills and the nearest water is a fraction over eight miles.

"This place, the town of Signal, is being built upon a little mesa in the center of a wash coming down from McCracken Hill in an easterly direction to the Big Sandy, and occupies all the ground between the Signal and Senator Consolidated mill-sites, and is distant about four miles from Greenwood. The Signal mill, on the south edge of town, is completed, with the exception of the smoke-stack, and is expected to be running in a couple of days and crushing fifty tons of ore daily. Work has been commenced on the Senator Consolidated or new McCracken mill foundation on the north edge. The machinery is now at Aubrey Landing, and the lumber for the building on the road between here and Prescott. This mill will have twenty stamps, and will crush from seventy-five to one hundred tons of ore daily. The old McCracken mill, ten stamps, is now running on tailings at Greenwood."

The *News and Press* of Cimarron, N. M., says the past season has been a very successful one for the Elizabethtown and Ute Creek mines. The placer mines, as a rule, have been worked to a high profit, and the supply of water was abundant enough to permit a full head on the mines for fully six months. Preparations are being made to further increase the water supply for next season, so that more ground can be worked. In referring to the quartz industry in the same district, the *News and Press* reports in substance that prospecting is still going on, and that some success has been met with, notably in the Mariposa lode on Aztec Hill. This vein was discovered last winter, and has been worked continuously this summer, in a very crude manner, which, however, has resulted in large profits. The ore, which is a fine gold quartz, has yielded (probably in arastras) from $35 to $75 per ton, and is in great abundance. The owner of the mine has sent to Chicago for a quartz mill, which will be running next summer. It is thought that Baldy Mountain contains many valuable mines, besides the once famous Aztec and Montezuma, which are now idle by reason of the lack of facilities to treat the heavy refractory pyrites which succeeded the free quartz found on the surface.

THE CHINESE AS PLACER MINERS.—The Oroville, Cal., *Mercury* says: "About $15,000 worth of gold dust per week is sent down to the mint from the Lava Beds, taken out by Chinamen. About this rate has been taken out all the summer. Sixty thousand dollars per month is a pretty good sum to be taken out of diggings that white men refuse to work or have anything to do with. Our figures are correct, being taken from Wells, Fargo & Co.'s books. The amount of dust that is daily coming in from the river claims is very large. The yield will be nearly as great as in the palmy days of long ago, when this was the banner gold-producing county." The Placerville *Democrat* says: "There are now working about thirty white men and fifty Chinamen at the river claim, near Chile Bar, who are taking out all the way from $400 to $800 per day."

THE VALLEY OF THE COLORADO RIVER, AND ITS GEOLOGY.—XIV.*

CLIFFS OF EROSION.

The ascent from the foot of the Shin-ar-ump Cliffs to the summit of the Pink Cliffs is but 4,000 feet; but, as the dip is to the north, in the direction of the ascent, the thickness of the beds passed over is much greater, being more than 10,000 feet.

I have said that these lines of cliffs have an easterly and westerly course, but they deviate greatly from this general direction in many places. Wherever a north and south fault is found, the block which has been thrown down has its lines of cliffs carried southward, or toward the axis of upheaval; or, if we are to consider the displacement as caused by upheaval, the blocks uplifted have their lines of cliffs set farther back to the north; and the amount of this backward or forward displacement is in direct ratio to the amount of vertical displacement in the fault or monoclinal fold. The higher region has suffered a greater amount of erosion, and as erosion progresses chiefly by undermining, as I have explained in the discussion of the Terrace Cañons, the cliffs of the higher blocks stand farther back from the axis of upheaval than those of the lower blocks.

The general line of these cliffs is broken in another way. Streams, heading on the high plateaus to the north, run southward into the Grand Cañon, and have carved out cañons through the cliffs, and turned the escarpment far back into the several benches; so that, instead of four unbroken walls facing the south and having an easterly and westerly direction, we have in fact a series of salients and re-entering angles.

Entering this country from the east or west, it is necessary to climb great benches due to displacements along faults, and crossing it from north to south, it is necessary to climb great benches; but these are due to erosion. So we have two systems of cliffs—cliffs of displacement, having a northerly and southerly trend, and cliffs of eresion, having an easterly and westerly trend.

The first—cliffs of displacement—are of two classes: those facing the west, where the throw of the bed is on the western side of the fracture, and those facing the east, where the throw of the beds is on the eastern side of the fracture.

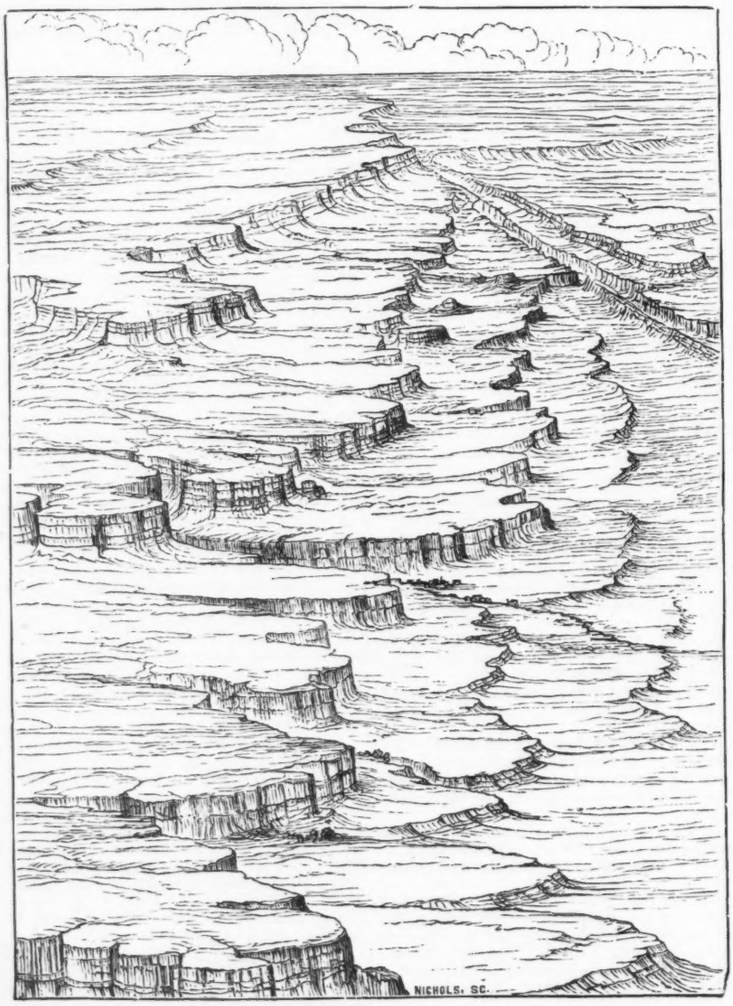
The cliffs of erosion are very irregular in direction, but somewhat constant in vertical outline; and the cliffs of displacement are somewhat regular in direction, but very inconstant in vertical outline. This inconstancy is due to the frequent changes in the character of the faults, which I have previously described.

In the Echo Cliffs, east of Marble Cañon, a line of cliffs due to erosion, and a slope due to displacement, have come together, back to back. The position of the slope is essentially unchangeable, as it is due to a flexure; but the escarpment, due to erosion, has doubtless been carried back from Marble Cañon to the east, until it has just reached this slope. In some places the erosion of the western escarpment has been carried back farther than the line of displacement; in other places, not quite up to it. But wherever the line of erosion has been brought up to the line of displacement, or near it, we find the rocks standing in sharp crags.

I have heretofore explained that one of the conditions essential to the cliff structure is that the beds of the summit must be comparatively hard, and the beds below, at the foot of the cliffs, very soft; and this condition is well illustrated in these cliffs. Now the lower beds are turned down, by the monoclinal fold, below the reach of the waters employed in degradation, as you pass across the fold from west to east; and hence these cliffs cannot be carried farther to the east by the progress of undermining, as long as the present conditions exist; and now the agency of erosion can only be exerted in obliterating the ridge. For this reason the ridge disappears in those places along its line where the undermining erosion from the west has progressed the farthest.

On the western side of the Paria Plateau there is an escarpment, facing the west, due to erosion, and the line of the escarpment, on its northern end, coincides with the line of flexure of the eastern Kaibab Fault. Here, again, we have a line of crags or peaks forming an irregular ridge, like that in the Echo Cliffs; but this stands on the brink of a well-defined plateau, and is higher than the general surface of the table. The crags and peaks are carved from the upturned edges of the beds. The slope due to displacement is seen farther to the west, and is the slope of the Kaibab Plateau, and faces the escarpment. Only a small portion of this slope is seen in the edge of the plateau, where stands the line of crags. The softer beds at the bottom, which constitute one of the conditions on which the escarpment depends, are still exposed to the action of rains and streams, and the cliff condition is not terminated as in the section previously given, and future erosion will carry this line of cliffs back to the east, as long as the present conditions are preserved.

The district of country through which the Grand Cañon is cut is divided into blocks by cliffs and cañons, and to each of the greater blocks we have given a name, and called it a plateau. Only a few of these, like the Kaibab, are well defined as tables, *i. e.*, blocks of land bounded on all sides by escarpments and slopes, which descend to lower lands. Many of them have escarpments and slopes to lower lands only on two or three sides, while the escarpments on the other sides are ascents to other plateaus. I will not linger here to describe these plateaus in detail, but shall defer a more thorough discussion of the subject to the detailed report on the geology of the district.



[FIG. 35.—BIRD'S-EYE VIEW OF CLIFFS OF EROSION,
Showing Shin-ar-ump Cliffs, Vermilion Cliff, and Gray Cliffs in order from Right to Left.

* Extracts from Report of Major J. W. Powell on *The Exploration of the Colorado River of the West.* Washington, 1875.

ASBESTOS.

It is only quite recently that this substance has risen from being simply a mineral curiosity to a quasi-important article of commerce. On account of its peculiar qualities, being indestructible in fire or by acids, fibrous, and capable of being woven into cloth or made into paper, often as fine as the finest flax or silk, or like spun glass, although strictly a mineral product. In early antiquity it was made the subject of curious myths and strange tales bordering on the fabulous. Practically its sole use then seems to have been for winding sheets, in which to burn distinguished dead, or to be spun into napkins, which were used at exceptional feasts, and, to the astonishment of the guests, afterwards thrown into the flames, to come out intact, white and purified. At least Pliny mentions this; and it also would appear that Charles I. had table-cloths made of it, which he also was accustomed to throw into the fire for the same purpose. More recently stockings and a handkerchief were made in Elba of asbestos, as gifts to Napoleon I., while living there in exile. From time immemorial the peasantry where it is found, in various countries, have turned it to economical use as an incombustible lamp-wick, for which purpose its power of capillary attraction admirably qualifies it.

Common asbestos, more or less fibrous, but of a powdery, brittle quality, is abundant in most countries, and begins to find its way into some of the industrial arts, but largely mixed with other materials. The strong, long, fibrous sorts, varying in color from pure white to dark brown, thus far are only found in sufficient quantity for commerce in the Italian Alps, at elevations of several thousand feet, and often, for much of the year, buried under the snow. They occur in serpentine rocks in irregular veins, usually very narrow, and requiring much heavy labor and blasting to open. Sometimes, but very rarely, masses are found in one lump, weighing several hundredweight. More frequently the veins prove very superficial, and give out almost at once. Then, again, they can be steadily worked for years, as they extend or penetrate into the mountain. Although some of these have been yielding as much fibre as there was a demand for since they were first opened in 1871–2, recently the increased call has led to the discovery of new productive veins of the very best quality, which will increase the income from a few scores of tons per annum to several hundreds. But the price, heretofore varying from £50 to £100 a ton, according to the quality and condition of the fiber, threatens to grow firmer, owing to the new uses now springing up for it, mostly based on patents, whilst Italian capitalists themselves begin to see the importance of a mineral, of which Italy has as yet a virtual monopoly, and are preparing to manufacture it on the spot where it is found into those goods which already find a steady and increasing demand.

These are, chiefly, steam-packing in the rope or loose form for piston and pump rods, and stuffing boxes, and millboards for steam-joints, gaskets, manhole plates, and a species of felting to cover boilers and steam-pipes. The ability of asbestos to resist an elevated temperature, moisture, friction and flame itself, joined to its lubricating quality, specially recommends it for the above purposes. The chief objection to the manufacturer is that, when properly prepared and applied, it lasts too long. As a covering for boilers and pipes, it saves 25 per cent. or more of the waste heat; and in domestic uses in cellars, to pre-

vent loss of heat by radiation, it is found to reduce the temperature of the cellar 15°, while raising that of the house above 10°, *i.e.*, it saves the furnace or steam heat, and sends it where it is most wanted.

Asbestos lining or sheathing paper, especially for wooden houses, for ceilings, floors, and partitions, to prevent the spread of flames and make each room fire-proof, is now attracting attention in America, and must recommend itself to builders generally, as rendering buildings not only safer from fires, but cooler in summer and warmer in winter, and free from insects that harbor in common papers. These papers are made in rolls of any thickness or length, and can be colored or printed with any desirable pattern. Fire-proof boxes for shelves in shops can also be made of this substance, and scenery for theaters, if fabricated of it, would be impervious to flames.

The varieties of asbestos are quite astonishing to those who have not made a study of this mineral. No two localities seem to yield precisely similar fiber. In the cabinet of Mr. C. A. Wilson, Genoa, Italy, there are at least one hundred distinct varieties from the Alps alone; one specimen when taken out of the mine was 5 feet long, and weighed 700 lb., of the most delicate cream color, and soft, like raw silk, after separating the fibers.

In America the asbestos business is mainly in the hands of a Boston company, protected by fifteen patents on various goods, and begins to assume a prosperous condition, calling for increased supply of the crude article, whilst in Great Britain it is chiefly centered in a flourishing Glasgow company, which was the first to risk the novel enterprise of trying to utilize a well-known mineral that has waited more than 2,000 years to become useful to men. In Paris it is begun to be adopted for civil and public registers in the form of a fire-proof writing paper. Recently, patents have been taken out in America and England to cover its use as a fuel-bed for petroleum in any sort of stove or engine-furnace. It absorbs and retains the oil, its capillary attraction causing it to burn only on its surface, where it is under perfect control, and gives out an intense heat. By a simple arrangement the hydrocarbons can further be converted into gas-fuel, so it is claimed.

These facts would indicate that there is a business future for this mineral, and that new uses for it are likely to be discovered. The most beautiful varieties of the long, soft, flexible, and extremely fine fibers, commonly known as "floss," and which are more abundant than the strong, tenacious fibers, yet await a call in the industrial arts.—*Iron.*

AMERICAN INSTITUTE OF MINING ENGINEERS.

OCTOBER MEETING.

[OFFICIAL REPORT.]

The fall meeting of the Institute began on Tuesday evening, Oct. 23, at Amenia, Dutchess County, N. Y.

Mr. J. F. Lewis, on behalf of the local committee of arrangements, made a short address of greeting to the members assembled, and then introduced Gov. A. H. Holley, of Lakeville, Conn. Gov. Holley addressed the Institute as follows:

MR. PRESIDENT AND GENTLEMEN OF THE INSTITUTE OF MINING ENGINEERS:—The flattering introduction by my friend Lewis may lead you to anticipate a more complete history of our mining country and manufacturing interests than I am prepared to give this evening.

Having withdrawn from the activities of a business life some years since, and consequently having become somewhat antiquated among the active business men of the day, I confess to some degree of embarrassment in presenting myself before this intelligent association, whose motto is, doubtless, progress, and whose business is constantly increasing culture in an important department of human industry. In this I cannot instruct you, and shall therefore avoid standing in the way of those who may do so.

Moreover, I have high authority for a good degree of reticence in speaking, for we all know that the silent man of the nation is at this hour receiving such grand ovations as have seldom, if ever, been bestowed upon a private citizen. As reticence, therefore, commands respect, I shall detain you but a few moments.

This word *progress*, gentlemen, has a broader significance among our people and in our country, than in any other, in my estimation. If it were not so, how should we have been enabled to exhibit to the world the magnificent results of our ingenuity, our industry, our advance in manufacturing and mining, as well as in science, in arts and arms, as we have done recently at the close of our first century of national existence?

In what other country have equal advances been made in the science of government, and in efforts to improve the condition of the race? The leading countries of the Old World have not hesitated to acknowledge our rapid advance in the utilities of life, confessing at the same time the necessity on their part of greater exertions in order to keep pace with us in the race of material improvement.

How have these things been accomplished? By unlimited freedom and application of thought, by untiring industry in all the useful avocations of life, by the association of cultured and investigating minds aiding and stimulating each other in the advancement of human knowledge, and in unfolding the resources of mind and matter in the great universe of God. One of the most useful of these associations in developing the physical resources of our country is, in my opinion, the one I now have the honor of addressing—the Institute of Mining Engineers.

Gentlemen, we give you cordial welcome to a mining, manufacturing, and agricultural country, of which we are not a little proud. We welcome you as an association, and as individuals. We invite you to an inspection of our resources, and to our methods of improving them. We appreciate the results of your efforts in past years, and we anticipate good from your advice and counsel in the future. You are in the vicinity of some of the oldest mining and manufacturing operations in iron in our country It will be our pleasure to conduct you to a mine which had been wrought for more than a half century before our country had achieved national independence, and to point out to you the spot where the products of this mine were wrought into cannon and shot during the progress of our revolution. We can show you also a far larger area of mining country than was supposed to exist in this vicinity at that early day. There are, within a radius of thirty miles from this spot, ten mines at least that have been extensively wrought, and there are as many more that have been occasionally worked, with a fair degree of success. All the mines that are wrought to any extent produce excellent qualities of iron, while many of them in various combinations produce as good material for the manufacture of steel, car wheels, axles, and many other purposes, as can be found in any country. The old Salisbury iron retains its reputation for tensile strength unsurpassed, when wrought entirely from the ore of the old mine.

The progress that has been made in the development of these mines since the days of the pick-ax, when the product was transported in pounds upon horseback, to those of the steam engine, which now moves hundreds of tons per day, presents indeed a strong contrast. In these improvements we have kept reasonable pace with the age, although we do not doubt that your intelligent association can suggest greater advances in mining, which will result to our advantage. The first blast furnace erected in Salisbury was located in Lakeville, and was put in blast in 1763 or 1764. It was unquestionably the first one built in the State. In 1762 the site which it occupied was conveyed to Ethan Allen, of revolutionary memory, and two other proprietors, who erected the furnace, and soon after sold it to the Caldwells, of Hartford, Connecticut.

During our revolutionary war the furnace was in the possession of Mr. Richard Smith, an English gentleman, who left it, and returned to his native country. The State of Connecticut, without confiscating the property, operated it for the manufacture of cannon and shot during the war. It was afterwards possessed by various other individuals until about the year 1814, when it became the property of Messrs. Holley & Coffing, who operated it for more than twenty years, and more successfully than any previous owners had done.

Subsequently, and at a considerably later period, five other furnaces were built in Salisbury, two of which are now in blast, I believe, and the others have been demolished.

Of the twenty-seven furnaces which I now recall as having been built and operated within a radius of thirty miles of this village, exclusive of those on the Hudson River, one half are either in operation, or in a condition to be put in operation at short notice whenever the demands for iron will warrant their use.

For many years after the construction of these furnaces, one half of them, at least, did not produce more than three tons of iron per day, and this was considered a fair product and quite satisfactory working. At present, and for some years past, furnaces of similar size and construction are made to produce from eight to twelve tons per day.

Among those that are thus productive are the Messrs. Gridley, Messrs. Miles, Mr. Matthies, and the Irondale Company, all in this Valley and State; the Limerock Iron Company and the Messrs. Landon, in Salisbury; the Canaan Iron Company, in South Canaan; the Barnum, Richardson Company's three furnaces in North Canaan, and one in Sharon, all in Connecticut; and the Richmond Company's furnaces in Vandeuzenville and Richmond, in Berkshire County, Massachusetts; making eleven furnaces in all.

The first *forge* constructed for making wrought iron was erected, about the year 1734, at Lime Rock. The iron was produced directly from the ore in small fires capable of yielding from 500 to 700 lb. per day. This process was continued for some years, but was abandoned soon after pig-iron came into the market, which was substituted for the ore in the forges, and forge fires were then multiplied to the number of thirty to forty within a radius of five or six miles of the old bed. These forges produced for many years large quantities of merchant bars, anchors, cotton screws, locomotive cranks and axles, besides furnishing large supplies of musket iron for the Government armories at Springfield and Harper's Ferry, and also for private armories.

The mines to which I have referred have furnished the ore not only for the furnaces above mentioned, but large quantities have been sent from several of them to Manhattan, Fishkill, Poughkeepsie, Hudson, Albany and Troy, and they are capable of yielding large supplies to any farther demand.

Mr. President, I am trespassing upon the forbearance of your Association, and will only add that facilities will be furnished you, by our friends and our liberal railroad companies, for visiting many of these works and mines, where you will make personal examinations that will be more satisfactory than any description which I can give. We renew a cordial welcome, anticipating pleasure from your visit, and trusting it may be made agreeable to yourselves and of benefit to all parties.

Doctor T. Sterry Hunt, President of the Institute, after responding to the cordial welcome of Governor Holley, spoke at some length of the geological and geographical features of Eastern North America, adapting his remarks to the large general audience present.

Professor T. Egleston, Chairman of the Committee on Gauges, then read the report of the Committee.

The following papers were then read:

On fluxing Silicious Ores, and Notes on Blowing-out. By F. F. Witherbee, of Port Henry, N. Y.

Notes on the Salisbury (Conn.) Iron Mines and Works. By A. L. Holley, of New York City.

SECOND SESSION.

The second session was held on Wednesday afternoon, when the following papers were read:

Methods of Mining on Lake Superior. By Professor T. Egleston, of School of Mines, New York City.

Tellurium Minerals of Colorado. By E. P. Jennings, of Cornell University, Ithaca, N. Y.

Description of a Form of Water-tube Boiler. By P. Barnes, of New York City.

Notes on the Iron Ores and Anthracite Coal of Rhode Island. By A. L. Holley, of New York City.

On a Graphic Method of keeping Blast-furnace Results. By Wm. Kent, of Pittsburgh, Pa.

On the so-called Buckshot Iron. By F. P. Dewey, of Dover, N. J.

The following is a list of new members and associates, with full P. O. addresses, elected at Amenia meeting:

MEMBERS.

Prof. Alexander Agassiz, Cambridge, Mass.
Mr. Samuel A. Barron, St. Louis Smelting and Refining Works, St. Louis, Missouri.
Chas. Everts, Ore Hill, Litchfield Co., Conn.
Victor R. Gibson, Lafayette and Easton avenues, St. Louis, Mo.
Henry C. Clark, P. O. Box 7, New Brighton, Staten Island.
Dr. Ernest Grenier, School of Mines, Golden City, California.
Edward Gridley, Wassaic, Dutchess Co., N. Y.
D. T. Hughes, Blue Tent Hydraulic Mining Co., Nevada City, California.
Henry King, Allegheny City, Penn.
Herman Meister, Washington University, St. Louis, Mo.
Fred. P. Miles, Chapinville, Litchfield Co., Conn.
William Miles, Copake Iron Works, Columbia Co., N. Y.
Santiago L. Myers, care of J. E. Stevenson & Co., 110 Liberty st., New York City.
J. G. Murphy, Orinoco Exploring and Mining Co., 426 Walnut street, Phila.
Gustave S. Neu, Room 95, 71 Broadway, New York City.
Ralph Nichols, Nyack, N.Y.
Walter Phelps, Irondale, Dutchess Co., N.Y.
Prof. Wm. P. Trowbridge, School of Mines, 49th st. and 4th ave. New York City.

ASSOCIATES.

George C. Brinckerhoff, School of Mines, 49th st. and 4th ave., New York City.
Kingo Namku, School of Mines, 49th street and 4th avenue, New York City.

THE ROTHSCHONBERGER STOLLEN.*

By R. W. Raymond.

(*Concluded from page* 309.)

The data for the following tables are gathered from two volumes of the *Jahrbuch fur das Berg- und Huettenwesen im Koenigreiche Sachsen.* For the transformation of meters into feet, I am indebted to Mr. H. S. Drinker. who, having thus rearranged the table for his forthcoming work on Tunneling, kindly returned it to me with permission to employ it in its present form.

It is a curious fact (if it be a fact), mentioned by the orator at the recent celebration, that the machine-drill was originally a Freiberg invention, and was tried long ago, without satisfactory results, in this very adit. Now, after making the tour of the world (though not "in eighty days"), it returns, perfected by the skill of American engineers, to win a conspicuous triumph on the scene of its early defeat†.

In concluding this brief and partial notice of a great work, I can merely give a few hints as to its extent and value. At the time of the final connection with Himmelfahrt, the Rothschönberger adit and its branches to Himmelfahrt, Herzog August, Junge Hohe Birke, Beschert Glück near Zug, Einigkeit and Vereinigt Feld at Brand, and Himmelsfürst at Erbisdorf, comprised a continuous completed length of nearly 43,000 meters. Additional extensions of the main adit, amounting to 4,300 meters, are still to be made, and branches to the government mines Isaak, Churprinz, etc., which will aggregate about 3,627 meters more, making a complete length for the adit and its branches of 50,900 meters, or 31.6 English miles. This will be the longest adit in the world. The cost thus far has been over 2,000,000 thalers,‡ or say $1,500,000 gold, which would be something over $51 per running meter. Assuming this sum to have been expended in equal installments of 60,000 thalers through thirty-three years, and calculating compound interest at 4 per cent. annually, we have as the total cost,

$$m = \frac{a\,(1+r)^n - a}{r}$$

a being the annual payment, r the rate of interest, and n the number of years. Putting $a = 60{\cdot}000$ thalers, $n = 33$, and $r = 0{\cdot}04$, m becomes in round numbers $3,972,600 thalers, or say $3,000,000. The cost of the adit has therefore been doubled by the delay. It is evident, on this showing, that "time is money" in an enterprise of this kind; and the moral of the calculation is still more strongly enforced when it is remembered that the long delay in the completion of the work has prevented the commencement of a productive industry, in comparison with which the loss of a few thousands in compound interest becomes trivial.

This adit drains the different mines with which it is connected to a depth from 94 to 152 meters below the deepest drainage adits formerly possessed by them. It therefore relieves the existing machinery from lifting water to that extent, and also furnishes that amount of additional fall, to be utilized by subterranean water-wheels or hydraulic engines, after the manner of the excellent system long practised in the Saxon districts. It is estimated that the power thus saved on the one side, and directly furnished on the other, amounts to 1,100 horse-power. This gain is enough to justify the expenditure; but a further element of profit, which cannot be accurately estimated, will be furnished by the reopening of numerous mines and the development of deeper levels in those now working, for all of which the adit will supply, without additional cost, the means of inexpensive drainage, and, to some extent, of natural ventilation also. If the economical Germans are willing to spend so much money, and make an adit thirty miles long for the sake of gaining from 300 to 500 feet in depth of drainage, it is evident that the age of deep tunnels is not over; and those engineers who have expressed doubts of the usefulness of the Sutro Tunnel, which will, with its branches, not exceed nine miles in length, and which penetrates the Comstock mines at nearly 2,000 feet below surface, may find reason torevise their views.

TABLE I.—MONTHLY PROGRESS OF THE ROTHSCHONBERGER ADIT, FREIBERG, GERMANY (HAND-LABOR, WITH BLACK POWDER).

Starting Point.	Mouth.		First Air Shaft.				Second Air Shaft.				Third Air Shaft.				Fourth Air Shaft.				Fifth Air Shaft.				Sixth Air Shaft.				Seventh Air Shaft.				Eighth Air Shaft.				Auxiliary Shaft.	
Direction	S. W.		N. E.		S. W.		N. E.		S. W.		N. E.		S. W.		N. E.		S. W.		N. E.		S. W.		N. E.		S. W.		N. E.		S. W.		N.		S.		(Beihilfe) Depths.	
Year.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.	Feet.	Meters.
1844	689	210	124·6	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1848	209·4	86	104·9	32	85·3	26	.....	.....	.....	.....	.....	.....	.....	.....	39·3	12	39·3	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1849	354·3	108	127·9	39	39·3	12	6·6	2	.....	.....	.....	.....	.....	.....	223·1	68	91·9	28	13·1	4	98·4	30	.....	.....	.....	.....	91·5	28	.....	.....	.....	.....	.....	.....	.....	.....
1850	347·7	106	279·1	85	.....	.....	176·2	54	131·2	40	.....	.....	.....	.....	236·2	72	72·2	22	26·2	8	177·2	54	.....	.....	.....	.....	124·6	38	.....	.....	.....	.....	.....	.....	.....	.....
1851	364·1	111	32·8	10	.....	.....	314·7	102	269·1	82	.....	.....	.....	.....	124·6	38	91·9	28	98·4	30	262·5	80	.....	.....	.....	.....	279·1	85	9·8	3	.....	.....	.....	.....	.....	.....
1852	252·6	77	.....	.....	.....	.....	282·4	86	275·4	84	.....	.....	.....	.....	172·9	53	59·0	18	59·0	18	213·3	65	.....	.....	.....	.....	200·0	61	.....	.....	.....	.....	.....	.....	.....	.....
1853	279·1	85	.....	.....	.....	.....	285·7	87	328·1	104	.....	.....	.....	.....	226·4	69	196·9	60	124·6	38	282·4	86	.....	.....	.....	.....	137·8	42	.....	.....	.....	.....	.....	.....	.....	.....
1854	498·8	91	.....	.....	.....	.....	321·8	98	354·3	100	.....	.....	.....	.....	210·0	64	269·1	82	137·8	42	318·5	97	.....	.....	.....	.....	275·8	84	.....	.....	.....	.....	.....	.....	.....	.....
1855	262·6	80	.....	.....	150·9	48	246·0	75	107·3	108	.....	.....	.....	.....	216·6	60	183·8	56	118·0	36	269·1	82	.....	.....	.....	.....	272·5	83	.....	.....	.....	.....	.....	.....	.....	.....
1856	295·5	90	.....	.....	59·0	18	72·1	72	173·9	51	.....	.....	.....	.....	206·7	63	216·6	66	249·3	76	210·0	64	.....	.....	.....	.....	252·6	77	.....	.....	.....	.....	.....	.....	.....	.....
1857	318·5	97	.....	.....	13·1	4	229·7	70	.....	.....	.....	.....	.....	.....	272·1	83	118·0	36	144·3	44	216·6	66	.....	.....	.....	.....	170·0	52	62·3	19	.....	.....	.....	.....	.....	.....
1858	337·9	103	.....	.....	65·6	20	210·0	64	33·8	10	39·3	12	39·3	12	190·4	58	124·6	38	98·4	30	111·5	34	.....	.....	.....	.....	26·2	8	13·1	4	.....	.....	.....	.....	.....	.....
1859	331·3	101	.....	.....	282·4	86	91·9	28	.....	.....	177·2	54	150·9	46	127·9	39	131·2	40	19·7	6	85·3	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1860	272·4	86	.....	.....	226·4	69	.....	.....	.....	.....	170·6	52	157·5	48	121·3	37	104·9	32	78·6	24	216·6	66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1861	286·0	88	.....	.....	262·5	80	.....	.....	.....	.....	210·0	64	196·9	60	157·5	48	196·9	60	65·6	20	78·6	24	.....	.....	.....	.....	127·9	39	131·2	40	.....	.....	.....	.....	.....	.....
1862	393·6	119	.....	.....	311·9	95	.....	.....	.....	.....	249·3	76	203·5	62	170·6	52	39·3	12	85·3	25	137·8	42	.....	.....	.....	.....	59·0	18	75·5	23	.....	.....	.....	.....	98·4	30
1863	183·8	56	.....	.....	360·8	110	.....	.....	.....	.....	511·9	95	337·9	103	144·3	44	33·8	10	24·6	38	177·2	54	.....	.....	.....	.....	121·3	37	170·6	52	.....	.....	.....	.....	52·5	16
1864	164·1	50	78·7	24	321·8	98	.....	.....	.....	.....	292·0	89	200·2	61	131·2	40	173·9	53	170·0	52	190·4	58	.....	.....	.....	.....	59·0	18	75·5	23	.....	.....	.....	.....	118·0	36
1865	.....	.....	.....	.....	249·3	76	.....	.....	.....	.....	170·6	52	203·5	62	150·9	46	157·5	48	137·8	42	196·9	60	9·8	3	45·9	14	118·0	36	59·0	18	.....	.....	.....	.....	31·9	28
1866	.....	.....	.....	.....	328·1	100	.....	.....	.....	.....	118·0	36	72·2	22	137·8	42	95·1	29	59·0	18	111·5	34	42·6	13	45·9	14	131·2	40	101·7	31	.....	.....	.....	.....	6·6	2
1867	.....	.....	.....	.....	308·7	94	.....	.....	.....	.....	.....	.....	.....	.....	216·6	65	101·7	31	.....	.....	9·8	3	65·6	20	111·5	34	3·3	1	6·6	2	.....	.....	.....	.....	6·6	2
1868	.....	.....	.....	.....	177·2	54	.....	.....	.....	.....	.....	.....	.....	.....	147·6	45	36·0	11	78·6	24	229·7	70	144·3	44	190·4	58	19·7	6	.....	.....	.....	.....	.....	.....	13·2	4
1869	.....	.....	.....	.....	.....	.....	.....	.....	167·3	51	.....	.....	.....	.....	173·9	53	3·3	1	13·1	4	126·4	69	200·	61	233·0	71	246·0	75	65·6	20	.....	.....	.....	.....	91·9	28
1870	.....	.....	.....	.....	.....	.....	.....	.....	229·7	70	19·7	6	.....	.....	255·9	78	75·5	23	59·0	18	.....	53	68·9	21	200·0	61	255·9	78	124·6	38	.....	.....	.....	.....	95·2	29
1871	.....	.....	.....	.....	6.6	2	.....	.....	339·5	73	236·2	72	36·1	11	.....	.....	263·4	62	213·3	68	187·1	57	206·7	63	206·7	63	193·6	59	114·7	35	.....	.....	.....	.....	.....	.....
1872	.....	.....	.....	.....	.....	.....	.....	.....	347·7	106	229·7	70	.....	.....	.....	.....	239·5	73	203·4	62	216·6	56	259·2	79	344·4	105	206·7	63	179·5	55	.....	.....	.....	.....	.....	.....
1873	.....	.....	.....	.....	.....	.....	.....	.....	118·1	36	108·2	33	.....	.....	.....	.....	62·3	19	55·7	17	62·3	19	59·0	18	328·	100	253·2	79	213·3	65	82	25	91·8	28	.....	.....
1874	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	255·8	78	229·6	70	196·8	60	.....	.....	.....	.....	.....	.....
1875	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23	7	9·8	3	246·0	75	91·8	28	29·5	9	.....	.....
Total.	5722	1744	748	228	3255	992	2411	738	3002	915	2333	711	1598	487	4036	1230	3117	950	2435	742	4426	1349	1056	322	1938	591	3821	1162	1771	540	173·8	53	121·3	37	568	173
Yearly Average.	318	97	124·7	38	191·5	58·3	220·1	67·1	230·9	70·4	179·5	54·7	159·8	48·7	175·5	53·5	119·9	36·5	101·5	30·9	184·5	56·2	117·3	35·8	193·8	59·1	158·8	48·4	110·7	33·8	86·9	26·5	60·7	18·5	71	21·6

Air Shafts.					Air Shafts.				
No.	Begun.	Completed.	Depth.		No.	Begun.	Completed.	Depth.	
			Feet.	Meters.				Feet.	Meters.
1	1847	1850	193·5	59	5	1847	1849	314·9	96
2	1848	1850	393·6	120	6	1848	1850	475·6	145
3	1848	1850	82·0	25	7	1847	1850	429·7	131
4	1847	1848	305·0	93	8	1865	1873	433·0	132

TABLE II.—ANNUAL EXPENDITURES AND NUMBER OF WORKMEN EMPLOYED ON THE ROTHSCHONBERGER ADIT, FREIBERG, SAXONY, IN THALERS: ONE THALER = 72 CENTS U. S. GOLD COIN, NEARLY.

Year.	Expenditure.	No. of Workmen.	Year.	Expenditure.	No. of Workmen.
1847	62,758		1863	76,921	278
1848	60,342	Unknown.	1864	75,153	240
1849	51,655		1865	78,600	262
1850	70,833		1866	70,641	213
1851	69,910	254	1867	70,481	191
1852	59,348	254	1868	75,570	200
1853	56,640	231	1869	76,119	207
1854	56,214	228	1870	76,593	211
1855	61,417	239	1871	77,261	242
1856	69,208	266	1872	82,908	217
1857	76,847	253	1873	84,187	216
1858	63,790	217	1874	97,033	213
1859	57,320	208	1875	262,612	215
1860	58,324	225			
1861	79,932	234	Total.....	2,235,897	.....
1862	76,780	263			
			Average.....	79,514	231·9

* A paper read before the American Institute of Mining Engineers, at the Wilkes-Barre meeting, May, 1877.

† Since the reading of this paper, my attention has been called, by Mr. H. S. Drinker, to the fact that Couch, of Philadelphia, invented the first percussion drill in 1849, and that Fowle's direct-acting drill was invented in the same year. I have not the precise date of the trial at Freiberg, but I feel sure it was later. R. W. R.

‡ This estimate was made before receiving the data concerning the expenditures of 1874 and 1875, which are included in the table. The argument holds good, though the amounts are smaller than those actually expended.

LECTURES ON MINING.—No. LIV.

By Prof. W. W. Smyth, M. A., F. R. S., Royal School of Mines, London.

VENTILATING MACHINES.

There are one or two more machines which have been employed for ventilating purposes in addition to those described in the last lecture which remain to be mentioned. One of these was invented by Mr. Cooke, and the invention was brought before the Iron and Steel Institute about a couple of years ago. It consists of an outer envelope, or case (Fig. 39. *A B*), and an inner revolving barrel (*D*), placed eccentrically; the diameter of this barrel in the larger machines being about 8 feet, and the radius of the circular envelope 6 feet. A peculiarly constructed flap-valve (*v*) is connected separately, and worked by a separate arrangement, the space between *v* and *B* communicating with the shaft, that between *A* and *v* with the outer air. As the barrel revolves in the direction of the arrows it will sweep out the air before it. There is another machine which should be mentioned, which is well known in mining operations in California, and for other blowing purposes in different parts of the United States, and which the lecturer had seen in operation in metallurgical works in Cumberland, where it was reported of very satisfactorily. It is the invention of Mr. Root, and the principle of it is shown in Fig. 40. Inside an outer case two peculiarly curved arms revolve against one another, in such a manner as to sweep out the air before them in the direction of the arrows. These machines are worked with great velocity, from 100 to 200, or even 300 revolutions per minute. Owing to the absence of joints the high velocity does not appear to injure them, as it does other machines where there is a greater number of moving parts.

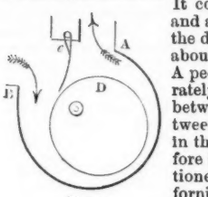


Fig. 39

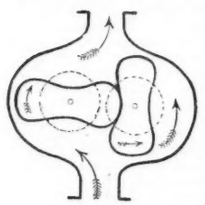


Fig. 40

THE MANNER OF DISTRIBUTING THE AIR.

We must now pass from the machines employed in generating the current to consider a point of at least as high an importance—the manner in which the air is to be distributed to the different parts of the mine. Within the last 20 or 30 years a very great improvement has been effected in ventilation in consequence of the greater attention which has been paid to this subject. Perhaps nothing proves more conclusively the great deficiency of arrangements for the distribution of air in former times than the fact that after getting but a very short distance from the shaft they found themselves obliged to sink a new one in order to obtain ventilation. As a consequence you find in parts, as in the Kilkenny coal field, some parts of Wales, and the Forest of Dean, the ground literally riddled with small shafts, through which large quantities of water find their way into the present workings. If we look at the methods adopted in the present day in workings in stratified deposits, we may take the case where two parallel roadways are being driven at a short distance from each other, Ventilation will be secured in this manner: when the men have passed along a certain distance, and find the air begin to slacken, they hole through, or thirl, from one road to another, and the air then circulates again. When they have advanced farther a certain distance it will be again necessary to open a fresh thirl, and then stop up the former by means of a "stopping." Thus, as long as there is a current in the mine it can be made to circulate through the levels in this manner. If there are side workings, or bords, opened out from these main roadways, the air will be made to pass along the side level, by placing a brattice across the main road (with a door in for passage when required, and the brattice will be carried up the middle of the side level to the end, and also into any branches, thus forcing the air to pass along those parts before it returns to the main roadway again. Similar thirls will be driven through between different bords, and by means of stoppings, doors, and brattices the air will be made to circulate through all these parts and at length be allowed to escape into the main level. With regard to the stoppings, the thirls that do not require to be used as thoroughfares will be filled up when they are supplanted, and usually the stoppings put in will be of earth packed closely down. It may be (and this is more satisfactory, since the earth is liable to press together, and thus give rise to leakage) that the stopping will be put in of brick work, not necessarily of any great thickness where explosions are not to be expected, and then rubbish will be generally stowed in at the back, to strengthen the brick work. In some cases, where it is desirable to get extra strength, the brickwork will be put in of an arched form, sometimes double, the two arches having their convex or concave sides opposed. Another point of the highest importance is that of the doors. Take, for instance, the main doors, which are placed in the levels, which communicate, nevertheless, directly between the downcast and upcast shafts, on the integrity of which it depends whether the air shall pass through the mine or shall take this direct course, and leave the whole of the remainder of the mine dead. Generally two of these are placed (sometimes three, for greater precaution), at a distance apart sufficient to allow of a train of wagons standing between, so that one door may be closed before the other is opened. They must be made very strong and carefully, especially in collieries liable to explosions; for not only is this necessary to prevent leakage, but to withstand as much as possible the force of an explosion; for it will be seen that if these doors be blown down the ventilating current will take the direct course to the upcast, and the whole of the workings will be laid dead. Those men, therefore, who have not been killed by the explosion will be suffocated by the stagnation of the air. What means can be taken to provide against such a calamity? One plan was suggested by Mr. Buddle, though not carried out in many cases. He suggested that a spring door to hang vertically should be placed in this part, and kept laid against the roof, propped up by means of a board; an explosion which is powerful enough to blow down the regular doors would be sure to blow down this board, and the swing door would fall into its place. The door (or a couple of them) might be sufficient to maintain more or less of the ventilation; and by reason of their swinging freely might resist a second moderate explosion; they also have the advantage of being readily pushed aside by the men who may be escaping.

In the collieries of St. Etienne, in France, swing doors of a somewhat similar kind, but made of sheet-iron, have been employed; they are usually counterpoised, so as to be brought down with considerable facility. Another class of doors, known as "dam doors," was also brought forward by Mr. Buddle, and may be of great service in many instances. In a stone drift, for instance, between two districts of work strong jambs may be fixed, and doors provided, and always set ready to put in these. If, then, a fire occurs in one of the districts the door can be placed in, and well luted with clay, thus preventing access of oxygen to the fire. Unfortunately it is very difficult to make these dam doors sufficiently air tight. The great point is to have the doors all ready, so that they can be placed at once should occasion arise. There is another kind of door, which may be put in in connection with brattices, a lightdoor, made of thin deal planking; it generally need not be made air tight, its object being to divert the greater part of the air to the end. Another variety consists of those called "sham doors," which are put in in places for the purpose of stopping the air to a certain extent, and capable of being slid backwards and forwards, on which account they are sometimes called regulators. By means of these the air supply to one district may be checked if necessary, and forced into another. Another class of doors are those by which the officers, or responsible persons, have access to the return air course, without the necessity of following the intake air through all its windings. This return air ought never to be allowed to be approached by an ordinary workman, or by any one who cannot be thoroughly trusted. The passage leading into the return course is very small, just high enough to creep through, and there are two doors which ought to be kept locked. In some cases the locks have been taken off, but there is not a point about which the discipline should be stricter than this. On many of these doors the safety of the colliery depends, and it is, therefore, important that we shall be able to rely on their acting properly. The question how is this to be secured, whether by machinery or by trusting to human beings, has been much disputed by some, and there is a great deal to be said on both sides. The trappers, or boys who are employed to look after these doors, may go off to play with their fellows, or may fall asleep; but after all this is not so bad as trusting to machinery, which is fallible, and which if it chance to go wrong gives us no indication of its fault. And, as a rule, it may be said that although devices have been proposed by which the approaching wagon shall open the doors, etc., machinery has not found favor. There is another point which might be referred to here—that in collieries where open lights are employed in working the whole coal, and safety lamps in the pillar working, a kind of watchman should be stationed at a certain point, with orders not to allow a naked light to pass into the pillar district. By proper arrangement of doors, stoppages, etc., the air in such a case will be first conveyed through the bords, and will then pass to the pillar workings, and so away into the return current.

We next come to the brattices, employed for the purpose of carrying the air further than it would otherwise range. In constructing them a number of pieces of timber are placed after the manner of props from roof to floor, and then boards of ⅛-inch deal nailed to them, so as to make a sort of wall. It is not necessary that this should be absolutely air-tight so long as it diverts a sufficient quantity of air into the end. Within the last 15 years it has been a good deal the practice to employ for this purpose a sort of strong canvas, first introduced and largely manufactured by Mr. Darcy Lever. It is a very simple plan; you have only to unroll a quantity of this material, and adjust it by means of a few nails, and thus you may get a good bratticing within a very short time. And this convenience of rapidity is a very important advantage in cases where it is decided to re-establish the ventilation after an explosion, etc. It may be objected that the canvas smells very strongly of tar, and also that it is very inflammable. A thicker and stronger material, a kind of tarpaulin canvas, has been employed instead of doors, hanging from the roof, the men having only to lift this up as they pass underneath, and then it falls down again into its place. Whole series of workings may be seen at the present day protected by these cloths or sheets, and so long as they are not depended upon for conveying a heavy current of air, they answer their purpose remarkably well.

In some of the older methods of working the number of doors introduced was very large, and whole districts depended on the integrity of several of these; this increased not only the leakage but also the liability to accident; the improved methods which have been adopted in recent times have greatly reduced the number. This, however, introduces another difficulty—the crossing of air currents, where we have two running in directions which cross one another at a certain point. In the case of a small amount of ventilation, as carried out in our Midland districts, a mere trough, or air-box, is used for one of the currents. But this is a very objectionable system, and, therefore, in larger collieries, where we have to interfere with the volume of air as little as possible, one of these roads is made to rise up, and pass over the other; and as it would be very convenient to have this rise occur in the main lode, with its rails, etc., while the return air course is not used for a thoroughfare, the latter is the one which passes uppermost. The separation between the two will commonly be merely a covering of strong boards, rendered as air-tight as possible with clay or earth laid over them. But there is one particular source of danger in this plan—there is the great risk of an explosion blowing out this partition, and then the air for the intake will escape into the return, and the whole district beyond be laid dead. To provide against this contingency various plans have been proposed—good strong arches of brickwork have been put in, but these are vulnerable if the explosion catches the arch from the inner side. In some collieries in the neighborhood of Wigan boiler-plate has been put in with great advantage; in other cases, the return course has been led up to some distance in the upper measures at the crossings, so as to leave several yards, according to the nature of the ground, between the two airways.

If we look at the practice of ventilation as in the North Country during the last century, we find there were usually two shafts and a furnace, and the intake current was led round the whole of the outer part of the workings, where the operations in the whole coal were going on, while the inner part of the workings remained in the center unventilated. Similarly with the long wall system, but in this case it soon came to be the practice to split the current of air at the bottom of the shaft into two portions, one going right, the other left. The objections to this system were manifold, but notwithstanding this it may be seen in use in many places at the present day. In the first place, if the colliery be extensive, there will be a vast mass of dead ground in the center, in which an accumulation of fire-damp or carbonic acid may go on, and may give rise to constant troubles. Sometimes it was proposed to ventilate this by taking a brick out of the stoppings here and there, but the remedy was perhaps worse than the disease. A second objection to the current as it passes along, taking up the products of combustion and respiration, evolved gases, etc., gets so foul as not to be in a fit condition to supply to any more men, and yet it has to traverse the whole round. About 1760 Mr. Spedding proposed a very great improvement, in reality a very simple and obvious one as it appears to us—making the air pass backward or forward through the whole workings before it was returned to the upcast; this was called coursing the air in twos or threes. But here, again, the length of drifts which the current had to traverse was enormous—10 or 20 miles very frequently, and in some cases 40 or 50 miles—so that the air going down in the morning did not come up again till night. When it was first proposed to divide the workings into panels or divisions, then it was suggested that the air current should be split. This improvement went closely hand and hand with the working in panels, and again with the limitation of the areas to be thrown into pillars, and the beginning of the working away of the pillars after a very

short time for the opening of the bords. Where the shafts were of ordinary dimensions they were capable of conveying a volume of air which was out of all proportion to that which could pass along one level: thus, taking the level 4 feet by 5 feet would give an arc of 20 square feet, while a shaft 12 feet diameter would give 113 square feet, and one 15 feet diameter, 176·7 square feet; so that one of these shafts would obviously supply air to several of these galleries, and not merely to one.—*London Mining Journal.*

THE CROSS CREEK COLLIERIES, LUZERNE CO., PA.

At the invitation of Messrs. Coxe Brothers & Co., about seventy gentlemen, representatives of the steamship lines, manufacturing industries and the coal trade, left this city by special train on the New Jersey Central Railroad, at 8.45 A.M., on October 30, with the object of visiting the Cross Creek Collieries, operated by this firm. At the start the weather was quite unfavorable, causing a number who had accepted the invitation to forego the pleasure that was offered them. Before we had traversed New Jersey, however, we had quite fair weather. The party reached Mauch Chunk about 1.30 P M., and, after dining, were taken in coaches to the foot of Mount Pisgah, and thence hoisted in cars up the inclined plane, 2,322 feet long, 664 feet vertical height, to an altitude of 1,500 feet above tide. This plane is operated by a powerful horizontal engine and drums, around which two steel bands wind, the variable diameter of the drum made by the band coiling on itself forming a counterbalance to the weight of the band, and making the work on the engine uniform. After reaching the top, the party was given time to enjoy one of the grandest views on the eastern coast; scenery often described in glowing, though never exaggerated terms—for it is impossible to describe in words its marvelous beauty. From this the cars run by gravity a distance of 6⅛ miles, making a descent of 302 feet, to the foot of Mount Jefferson. The train was then hauled up this mountain, the inclined plane being 2,070 feet long, and the ascent 462 feet, reaching an absolute height 160 feet greater than Mount Pisgah. This plane is similar in its operation to the one described above. From this point the train ran by gravity to Summit Hill, where the party visited the seat of the first important coal operations in this country, and a mine, opened in 1820 as an open quarry, which has been burning now for more than thirty years. Again taking the cars, the party descended by gravity a distance of eight miles, on an average grade of 96 feet to the mile reaching the point of starting at the foot of Mount Pisgah. In this last stretch the brakemen in charge of the cars showed an inclination to give the party sensations that should not be forgotten at an early day. The speed attained gave some of the party the idea that they were telephonic messages. One of the gentlemen, who met the table and other dangers quite bravely, remarked that he was "not a timid man, but would have liked to have seen a hill to run up, or to have had the brakes drawn a little closer.

Tuesday night was spent at the Mansion House, Mauch Chunk, where every provision was made for the comfort and entertainment of the guests. We had in store for us, however, a still greater treat than any we had received. It was described in a concise programme which was furnished each member of the party, and which described quite clearly, both to miners and those unfamiliar with the operations, the mining and preparing of coal for market. From this we make the following notes:

The railroad from Mauch Chunk follows the Lehigh river for about 19 miles to the mouth of Sandy Run, where the Sandy Run branch of the Lehigh & Susquehanna Railroad leaves the main line, and follows the creek about four miles, where it passes through the gap in the mountain known as the Owl Hole, and enters the coal region; from Mauch Chunk to this point the road runs through the Devonian Rocks; at this point we come upon the rocks of the coal measures. We then traverse the Buck Mountain Coal Company's collieries, the Council Ridge collieries at Eckley, and the Jeddo collieries at Jeddo, and arrive at Drifton, which is ten miles from Sandy Run Junction, and at which the Cross Creek collieries are located. They are situated in Hazel, Foster and Butler townships, Luzerne county, Pennsylvania, upon the Lehigh & Susquehanna and Lehigh Valley Railroads, and are about 100 miles west and about 16 miles north of the city of New York. The No. 1 colliery, which is the oldest, now produces from 5,000 to 5,500 tons per week. The party then visited the breaker, in which the coal is prepared for market (a new breaker to replace this one is now in course of construction), the carpenter, blacksmith and machine shops, storehouse and fans, and then went into the mines. The cars which come out of the mines contain coal of all sizes, slate and dirt (by the latter we understand that the coal and slate are too small for market), and must go to the breaker so that the coal may be prepared. There are three operations to which the coal is subjected in the breaker.

1st. Sizing.
2d. Crushing.
3d. Slating (picking the slate out of the coal).

In order to burn anthracite to the best advantage, it is important that the lumps should be of uniform size. The lump and steamboat are made by passing the coal over parallel bars. Lump generally passes over bars placed from 4 to 6 inches apart; what goes through these passes over bars about 3 inches apart, which retain the steamboat and allow the rest to fall through. Broken, egg, stove, chestnut, pea, and buckwheat, are made by passing the coal through cylindrical screens with meshes of different sizes. They are made with either cast-iron, wire, or punched sheet-iron segments. By allowing water to fall upon the screens while moving, the coal is washed and the dirt more easily removed. It generally happens that the coal coming from the mines contains more lump and steamboat, and even broken, than can be sold, and also long irregular pieces unsuitable for market; it is necessary to break these to make prepared coal; this is generally done by means of two cylinders, with iron or steel teeth, which run into each other with great velocity (90 to 120 revolutions per minute). The coal drops in between them and is crushed in passing through. By placing the rolls nearer together or farther apart more or less of the smaller sizes can be made. This is done by a very simple device.

The coal is slated either by hand or machinery. The large coal is picked by hand while passing down inclined chutes. All sizes from broken down are washed; the coal when wet can be more easily distinguished from the slate. There are two mechanical methods of separating the slate from coal, the dry and the wet. The first depends upon the shape of slate, which is generally in long, thin pieces. By placing segments containing long narrow slits around the cylindrical screens, much of the slate is allowed to pass out, and most of the coal is retained. The openings through which the stove coal passes are about two inches square, the slit which lets the slate out of the stove coal is about a foot long and half an inch wide.

The wet method is known as jigging, and depends for its action upon the difference between the specific gravities of coal and slate. Slate is from 60 to 70 per cent. heavier than coal. The coal with slate is fed into the center of a large cast iron receptacle, with a perforated bottom about six feet in diameter, (resembling an ordinary sieve in shape), which is immersed in water, and is moved up and down, from one to two inches, about 200 to 250 times per minute. The coal and slate being fed into the center, gradually finds its way to the circumference, and during its progress, the slate being heavier, works its way to the bottom. At the circumference the slate is let out through a trap in the bottom, and the coal passes over the side. A very good separation is effected in this way. At No. 1 breaker the chestnut and pea coal is jigged; in some places stove is also jigged; jigs for small stove will be used in the new breakers.

PROGRESS OF COAL THROUGH THE BREAKER.

The car coming from the mine is raised to the top of the breaker or dump, where the gate of the car is opened, and the coal falls into a chute, with a series of bars in it. The first set of bars lets through all coal smaller than steamboat, the second set the steamboat; the lump alone arrives at the platform, where slate is picked out and coal allowed to pass into the lump chute, from which it is loaded into cars; just below the platform is a set of bars, which is placed over a pair of rolls. If all the lump cannot be sold, the latter bars are placed from 10 to 15 inches apart and the coal which passes through is broken into steamboat, and smaller sizes. The steamboat coal which comes from the second set of bars below the dump, and from the upper rolls, passes down chutes containing bars (which take out the small coal) and in which the slate is picked out into a pocket. What steamboat *cannot* be sold, instead of going into the pocket, passes through another set of rolls (called prepared coal rolls), which breaks it into prepared coal. The coal which passes through the first set of bars near the dump, goes into a screen (called the mud screen), upon which water is thrown; this screen separates it into A coal, too large for prepared coal, which after being picked goes through the same rolls as the steamboat coal, B coal fit for prepared coal which goes to the screens, and C pea coal and dirt which goes to the pea coal screen. All the coal which goes through the prepared coal rolls, passes with the coal B from the mud screen into a series of revolving cylindrical screens, upon which water is thrown and which separates it into broken, egg, stove, chestnut, pea, and buckwheat coals.

The broken, egg, and stove, when they leave the screen, pass down chutes (where the slate is picked out by men and boys) into pockets, from which the coal is loaded into railroad cars. The chestnut and pea coal pass from the screens into jigs, and then into pockets. The water carries away the dirt which is gradually filling up the valley. In order to render the trip in the mines more interesting, a short method of the description of mining was given. The coal occurs in continuous beds or layers in the earth, which have generally a constant thickness. If we imagine the trunk of a large tree with a smooth bark to be sawed in half lengthwise, and one-half to be buried in the earth so that the flat part (the saw-cut) is on top and level with the ground, the bark would represent very well the position of a vein of coal in the earth. In opening a mine in the Lehigh region, the first operation is to sink, at some point where the vein comes nearest the surface, an inclined shaft (called a slope), until a certain depth is reached (generally 100 yards from the surface along the vein): here gangways (a horizontal tunnel in the vein) are driven in both directions from the foot of the slope, rising slightly, so as to make the water drain to the slope. A double railroad track is laid down the slope, forming an inclined plane; and from the foot of the slope a single track is extended along both gangways. A slope generally 100 yards long does not reach to the bottom of the basin (the part of the vein or bark farthest from the surface where the vein raises towards the surface in both directions), and therefore the vein on one side of the gangway is generally above, and on the other below the latter. The coal above the gangway only can be worked from it, as we would get below the water level if we attempted to get at the other. Upon the gangway on both sides of the slope and from twenty to fifty yards from it, a breast or chamber ten yards wide is opened, and five yards left for a pillar; and then another breast, ten yards wide, is opened, and so on. In each breast a miner and laborer work, who cut the coal and bring it to both gangways, where it is loaded into cars. If the vein, and consequently the breast, is steep, the coal slides down to the gangway; if flat, a railroad is laid into it and the car taken in; if neither steep nor flat various devices are used to get the coal to the gangway. Railroads, upon which mules and locomotives are used, are laid all through the mines. The water runs to the bottom of the slope and is there pumped to the surface. The mines are ventilated either by means of fans which suck the air out, or by means of furnaces or exhaust steam. The latter are placed at the bottom of vertical or inclined shafts (chimneys), and cause an upward current which draws the air through the mines. The party entered the mine by cars from the surface, and passed down a slightly inclined gangway to the workings, seeing the various operations, returning by another inclined gangway to the foot of the slope, there visiting the pump, and was hoisted up the slope to the surface. The party then took the train to No. 2 (the new breaker), which is nearly ready to run, seeing the improved machinery and breaker, bull-engine for pumping, hoisting engines, locomotives, etc.

The party was carried to New York at lightning speed in two hours less time than had first been determined upon, thereby enabling many to reach their homes who would otherwise have been compelled to spend the night in the city.

There was one portion of the programme which was a great surprise. After being hauled through the mines a long distance and shown the modes of mining, etc., the party was suddenly stopped in front of a brilliantly-lighted "breast" or "chamber," where a table was set furnished with a most enjoyable lunch. The public has been favored with a description of a banquet given in the Bonanza Mines in a chamber with walls of glittering silver. That was excelled in this case, for here the walls were of sparkling diamonds. The appearance of those present at the feast was probably not so attractive as that of the guests of Messrs. Flood & O'Brien, for most of the party were furnished with regular oil-cloth miner's hats, and the most careful had failed to pass the morning without securing a black streak or two across the face, while the hands of some would have done justice to a slate-picker.

That part of the programme spoken of as "dinner a quarter before four o'clock" was a grand success, a banquet perfect in every detail. It was served in a large room over the store. During the dinner sweet music was discoursed by Italian musicians who, Mr. Coxe informed us, were a portion of a colony of Italian miners he had in his employ. Addresses were made by several of the prominent gentlemen of the party, after which Mr. Coxe, in a few brief remarks, reviewed what we had seen; the manner in which he has conducted his works, and the care and watchfulness he has had for his men, are worthy of all praise. Mr. Coxe has good reason to be proud of his labor, of the grand social system he has built up, and of his engineering skill, the result of a life-long study, for there is not another colliery in this country so well appointed, or where such great efforts are made to elevate the men and offer them comfortable homes.

Mr. Eckley B. Coxe, with his very extensive knowledge of mining matters, instructed the party upon all matters relating to the mining and production of coal, but in the art of entertaining, Messrs. Harry B. and Alexander B. Coxe, and Mr. Arthur McClellan, superintendent of the works, also showed themselves "experts" in the highest sense of the word. The universal opinion, freely expressed, was that no more enjoyable entertainment had ever been participated in by any member of the party.

There was but one cloud that fell over our pleasure, and that was a sad accident that happened to our genial companion, Col. Kane, the Vice-President of the New Jersey Central Railroad, who, while in the mines, slipped and dislocated his knee—an accident which the local physician thought would confine him to his room for some months. He, however, suffered but little pain, and maintained to the last his usual good spirits. We trust he may soon recover, and remember but the fact of this being the most charming excursion his many years have seen.

At the present time, the Cross Creek collieries are producing about 1,000 tons of coal per day. When the breaker described as No. 2 is completed, the capa-

city of the works will be doubled, and with further developments now being made at Woodside, there will be added to the daily capacity of these collieries from 300 to 500 tons more, so that in 1878 we shall probably find Messrs. Coxe Bros. & Co. in the market with a daily capacity of from 2,300 to 2,500 tons of coal, the quality of which has no superior in the market.

But few of our readers, except those who have seen breakers, have any idea of the massive machinery and material that is necessary to mine and prepare coal. We were told that there would be 500, 000 feet of Georgia pine, and about 100,000 feet of other lumber, used in the breaker that is to take the place of No. 1, and even this vast quantity of material is not so great as has been used in building several other breakers now in operation throughout the coal region.

We were shown in very successful operation the invention of Mr. John C. Wooton, for burning coal dust. These collieries consume, for steam purposes, about 4,000 tons per annum, and if coal dust can be used at the mine, it will give them that much more coal to send to market.

In the village of Drifton, entirely the property of this firm, there are two churches, a Roman Catholic and Episcopalian, the latter built and supported by the firm. There is a temperance hotel, large store, library, the residences of members of the firm, and that of Judge Coxe, and 281 miners' houses. There are water works in operation, and petroleum gas works, with a capacity of 2,500 feet per day, are nearly completed.

The number of men and boys employed at these collieries is about 850. Upon an examination of the pay roll for last month, we found that a good miner made, after deducting all his expenses, $87 91 (and this was not the best wages earned) while a very poor miner earned $46·53, the average being about $55 to $60 per month. The wages of outside labor was $1.05 per day; breaker boys, 30c. to 80c.; best drivers in mines and miners, when on day's wages, $9.92 per week; ordinary drivers and mine laborers, $8.50 per week.

The high esteem in which the Messrs. Coxe are held by their employes, and the amicable relations always maintained between them, are a flattering recognition of the value of strict justice, honor, and honesty, in the management of such works, and must be a source of great satisfaction to these gentlemen.

We must all feel a lasting indebtedness to Messrs. E. B. Ely, Harry Ely, and Geo. Merryweather, the gentlemen who, in connection with Mr. S. W. Ely (who, owing to illness, was unable to accompany the party) market the Cross Creek coals, for their efforts, in connection with Messrs. Coxe Bros. & Co., to contribute to the pleasure of this most enjoyable excursion. A. G.

UTAH MINING NOTES.

Special Correspondence of the Engineering and Mining Journal.

Since my last letter to you, there have been many important changes in the mining interests of Utah. Early in the year the Flagstaff Silver Mining Company made a successful attempt to wrest its property from the possession of Davis & Patrick.

A. G. Hunter was sent out from England as attorney in fact and lessee of the company, his appointment being unknown to Davis. Upon his arrival he secured possession before steps could be taken to prevent, and the right of the owners to hold their property was confirmed by the court. Having occasion to visit the mine shortly after this, I found it to have been in some respects well worked, and the ore reserves considerable. Under the new management the mine proved up well, the ore shipments for the last eight months averaging 40 tons of first-class ore (worth from $25 to $40 per ton) per day, while for five months the output of second-class or "iron ore" was from 20 to 40 tons a day, worth $15 per ton. The net profits of the mine for these five months were about $60,000. As the mine was now doing no better than when under Patrick's charge, excepting that now it was making a profit and then was running in debt, an idea may be formed of the old management. Unfortunately, the estate is still largely in debt, else the stockholders might expect some returns. As it is, there are hopes. In June last a committee of the stockholders came to Utah to inquire into the affairs of the company. Soon after, the lease held by Hunter was annulled, and a new one made with G. Billing, of the Germania Company.

In March last the Jordan Silver Mining Company, which succeeded the Galena Silver Mining Company, was wound up on petition of the bondholders. The mines in Bingham Cañon and the works on the Jordan River, including the long water power canal, were sold and bought in by L. E. Holden, the principal creditor. Holden immediately tore down the old furnaces and replaced them by three new ones, remodeled and improved the works generally, and is now building two new furnaces. In addition to these improvements, he is also erecting concentration works immediately adjoining. The remodeled and improved works are designed more especially for working ores from the Old Telegraph Company's mines. The Jordan and Galena mines are now being worked, and it remains to be seen what this much-abused property will prove under good management. This property, when put upon the market, had a future second to none in Utah, but the selection of managers without proper business qualifications has brought it to bankruptcy.

The Sheridan Hill Mining and Smelting Company, owners of the Neptune and Kempton mines in Bingham Cañon, is another of the good properties which has become bankrupt by official mismanagement and incapacity. When a change was made in the direction, it was already too late, and last spring it "passed in its checks" to its creditors. The smelting works are idle, but the mine is being worked by Jackson & Co., lessees.

A year since the Omaha Smelting and Refining Company, of Omaha, Neb., leased the works of the Flagstaff Company, at Sandy, for one year, receiving the entire output of the Flagstaff Mine. It kept four furnaces in blast all the time, producing from 25 to 35 tons of lead a day. Owing to the depressed state of the lead market, it concluded to close down and go out of business here, and commenced removing the machinery, etc. belonging to it about September 1. The site of these works is so badly chosen, and so much money would be required to refit them, that this, taken in connection with the anxiety of three or four parties to be considered the owners, will probably prevent the works being again started.

The Mingo Smelting Company, a branch of the Pennsylvania Lead Works, has been running two furnaces for the greater part of the last year. It is now adding two new blast furnaces and a long reverberatory furnace. The capacity of these works will be more than doubled.

In the spring, the smelting works of the Hidden Treasure Mine, at Stockton, were burned. The works were rebuilt and started again recently. The ore from the mine has been shipped during the summer to Sandy. A new tramway has lately been completed from this mine down the cañon to the valley, which will facilitate ore shipments during the winter.

The Chicago Silver Mining Company has had one and two furnaces running during the year until about September 1, when the decreased value of base bullion and the increased cost of mining, due to the amount of dead work necessary and the small size of the ore bodies, involved them so that they were compelled to close down. I learn that the works will soon start again for a short run, the proceeds to go to the employes, to whom the company was in arrears. As the total liabilities do not exceed $50,000, and the property has until lately paid dividends, the affairs of the company will probably soon be so arranged that business can be resumed, more especially as the mine is now looking remarkably well.

The completion of the Utah Western Railway (narrow gauge) to within one and one-half miles of Stockton will prove of great benefit to mines and works in that vicinity.

Utah has always been known as the country for large mines, but the discovery of the Bonanza Mine in San Francisco District, 175 miles south of here, throws all others in the shade. The explorations at the time of my visit showed a body of ore nearly 200 feet long, over 200 feet deep, and over 30 feet thick, and its limits not yet determined.

The ores consist of carbonate, sulphate, and sulphide of lead, the first predominating, with a heavy spar gangue, and containing from 5 to 15 per cent. of free sulphur. The average of considerable quantities of the ore was 50 per cent. lead and 40 oz. silver per ton. Williams & Latry, Godbe & Co., and the Bonanza Company erected works for treating these ores, but the great distance which the base bullion has to be hauled by teams, and low prices, will limit the production for some time. Should the U. S. Railroad be extended south so as to bring this mine in the market, it will considerably increase the bullion product of Utah. At present there is no prospect of this.

The great fall in the value of lead has more seriously affected Utah than any of the other Western States or Territories, since the majority of our ores depends as much on the lead as on the silver for their value, and a slight decline in the market price of either metal seriously affects the small profits which close competition has left the smelter in Utah. Then, too, the surface ore bodies having been to a great extent exhausted, the miners are at greater expense in producing ores from deeper workings, and thus the considerable reduction in the prices paid for ores has compelled the temporary abandonment of several mining enterprises, and an almost universal decrease in the output of those mines still working.

Notwithstanding this the total product of Utah in base bullion and exported lead ores for 1877 will equal, if not slightly exceed, that of 1876.

STATEMENT OF BULLION AND ORE SHIPPED FROM SALT LAKE CITY, DURING WEEK ENDING OCTOBER 6, 1877.

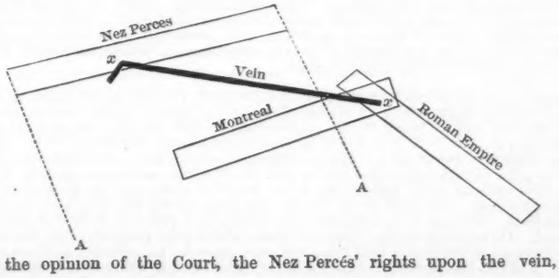
Consignor.	Consignee.	No. Cars.	No. Bars.	Bullion. lb.	Ore. lb.
Mingo	Pittsburg	8	1,600	170,496	....
Telegraph	"	10	2,700	210,391	....
Morgan	"	4	978	87,915	....
Du Rell	"	1	240	20,805	....
Germania	Hagan & Billing	9	2,115	186,184	....
Latry & Williams	Omaha	1	268	21,963	....
Waterman	"	3	735	62,520	....
Godbe & Co., San Francisco	Crookes Bros, New York	5	1,275	104,185	....
Du Rell	Cook & Co., Chicago	2	340	29,770	....
E. G. M. Co	" "	....	153	12,257	....
Raymond & Ely, Con	Hilliard	2	....	....	40,000
Wild Dutchman & Emily	Omaha	4	....	....	80,000
Total		49	9,904	906,494	120,000

TATEMENT OF BULLION AND ORE SHIPPED FROM SALT LAKE CITY, DURING WEEK ENDING OCTOBER 13, 1877.

Consignor, or Marks.	Consignee.	No. Cars.	No. Bars.	Bullion. lb.	Ore. lb.
Mingo	Pittsburg	7	1,400	149,585	....
Chicago	"	3	630	53,183	....
Pascoe	"	....	80	8,070	....
Telegraph	"	6	1,320	125,733	....
Du Rell	"	1	240	21,156	....
Morgan	"	2	490	43,910	....
Waterman	"	3	935	62,138	....
Germania	Hagan & Billing, New York	5	1,175	103,284	....
Latry & Williams	Omaha	2	535	43,892	....
Highland, Pioche, Nev	St. Louis	1	216	20,625	....
Morgan	Crookes Bros	1	243	21,967	....
Godbe & Co	"	2	510	41,382	....
Du Rell	Cook & Co	2	480	41,980	....
Pascoe	"	1	210	21,290	....
Mackintosh	Omaha	2	....	....	40,000
Prince of Wales	Hilliard	12	....	....	252,290
Hammond	"	2	....	....	42,650
Conklin	"	4	....	....	80,600
Total		56	8,464	758,195	415,540

IMPORTANT MINING DECISIONS.

In my hasty summary of a fortnight since, I neglected noticing several legal decisions upon mining cases tried here during the past year. The first of these, entitled Kahn *vs.* Old Telegraph Mining Company, involved the title to a one-third interest in the largest ore-producing mine in the Territory, and, at the same time covering several important points in mining law, its decision was looked for with interest. The facts are briefly as follows: The Montreal was located at the base of a hill upon a vein which passes thence toward the crown of the hill, entering what is now the patented ground of the Nez Percés Mine, but not being identical with the vein worked there. Developments showed that but a small portion of the apex of the vein lies within these side lines. Again, a patent issued for the Roman Empire claim covered the discovery point of the Montreal.



In the opinion of the Court, the Nez Percés' rights upon the vein, as

conveyed by patent, was to all that part of the vein included within the planes formed by projecting the end lines as indicated to *A A*. In this case, the Montreal was the oldest discovery, but unpatented. Again, the discovery of the Montreal being included in the patent grant of the Roman Empire, although not claimed upon the same vein, is absorbed by the patent and leaves the Montreal without an identity. In other words, the decision affirmed that of McKean, C. J., that a vein could be followed on its course even when it passed outside of its patent lines. This was again practically affirmed in the granting of an injunction in the case of Watson *et al. vs.* Chicago S. M. Co. In this case a receiver was appointed to hold a certain portion of the Queen of the Hills Mine, the apex of which portion lay without the patent lines of the Queen of the Hills, as confessed by both parties. In the case of Tarbet *vs.* Flagstaff S. M. Co., decided a week since, the opposite opinion was held. In this case, Tarbet owned the South Star Titus claim, which held the vein on both sides of the patent of the Flagstaff, which patent had a course at right angles to the course of the vein. The Flagstaff company had worked the vein on its course beyond where it passed outside the side lines of their patent, and for this they were mulcted in the sum of $45,000. This decision will probably now hold as law, and mine owners be confined to that portion of their vein included in the patent ground.

IMPORTANT ORE DISCOVERY.

The feature of the past fortnight in mining circles has been the discovery of an immense body of ore on Kesler's Peak, Big Cottonwood Cañon. The only development thus far made is an open cut some twenty feet wide by sixty long by ten deep, with ore in sides, bottom, and face. Two car loads of this ore were sampled and shipped to Hilliard. It assayed 65 per cent. lead and 64 ounces silver per ton. It is by far the richest strike made this year in Utah, and, I understand, was found by the caving of some old works which disclosed the ore above. In Little Cottonwood Cañon a relocation was made of the Nabob, a claim lying about 200 feet from the Flagstaff discovery and on the same vein. From this considerable quantities of rich ore have been taken. Bingham has suffered more from the drop of prices in the lead market than the other neighboring camps, on account of the important part which lead plays in the value of the ores. On this account the majority of lead mines are only shipping as necessity requires. Holden, of the Telegraph, Jordan and Grecian Bend, holds his lead ores at $1 per oz. Ag on a standard content of 35 per cent. lead, while the market rates rule $1 per oz. Ag on 40 to 45 per cent. lead, and even at the regular rate smelters find the business none too profitable. The principal shippers in Bingham are the Telegraph Company, the Revere, who ship on contract to the Pennsylvania Company, and the Yosemite, together with several small producers. The low prices prevailing have made desirable lead ores scarce. During the past week the Germania closed for a few days, while Pascoe stopped for some time.

S. C.

NOTES.

HYDRAULIC RAILWAY IN PARIS.—A Girard hydraulic railway, the wheels sliding on the surface of a film of water on the rail surface, is being built in the Park of the Trocadero, Paris, and will convey visitors to the Exhibition. It will be 400 meters long.

GYPSUM AND MANGANESE SHIPMENTS FROM CANADA.—The quantity of gypsum shipped from Windsor since the opening of the navigation in the Spring to September 30th last is 81,568 tons. Sixty tons of manganese were also shipped during the same period.

SILVER DISCOVERY IN NEW BRUNSWICK.—The Montreal *Journal of Commerce* says a valuable discovery of silver has been made at St. George, N. B., on an island in the river. Some United States citizens secured the property, and have taken out about two tons of ore, each barrel of which is said to be worth $500.

CHINESE IN QUEENSLAND.—By the Queensland Goldfields Amendment Act of 1877, which has just received the assent of Her Majesty, the sum payable by Asiatic and African aliens for license for miners' rights, is to be raised from 10s. to £3, and that payable by them for a business license is to be raised from £4 to £10 for each year during which the same is to be in force. The object of this Act is to discourage the resort, particularly of Chinese, to the Queensland goldfields.

A CURIOUS ACCIDENT TO A LOCOMOTIVE.—Recently the bearing of the connecting-rod on the pin in one of the Pennsylvania & Reading Railroad Company's locomotives became heated, and the engine was stopped, and water thrown on it to cool it. Upon starting again the connecting-rod broke off about a foot from the pin. It was subsequently ascertained that in heating, the anti-friction metal had melted, and when water was thrown on it it welded the rod fast to the pin. It was with difficulty that they were separated.

KANAWHA COAL MINING ITEMS.—Strike ended ten days since at Coal Valley, Stranghan's, Johnson's and Faulkner's mines, after lasting three months. Rates advance about 10 per cent. Strike this week at Pioneer mine. Strikes reported at Raymond City and Cannelton. Peytona elevator burned at mouth of Coal River, about two weeks ago; used transhipping from river to Chesapeake and Ohio Railroad. Smith's storehouse burned at Blacksburg, two weeks since. No suspicion against miners. Lease now passes from J. R. Smith to Mr. Mason, the railroad contractor.

THE WORKING OF THE BORAX MINES IN THE STATE OF CALIFORNIA.—The boracic minerals are lixiviated at a boil in large wooden cisterns holding about 14,000 litres. When the liquid rises to 28° B., the clear portion is run off into crystallizing tanks three meters long, two high and one in width, where the solution cools slowly down to 25°, which may take from six to ten days. When it gets below 28° the process is watched, so as to get rid of the mother-liquors before sulphate of soda is deposited. When the mother liquor is run off there is also an escape of mud mixed with octahedral crystals of borax, which are washed in the mother liquor of the next operation, and preserved to be refined. At the bottom of the tanks is a deposit of borax, sometimes 15 centimeters thick, which is broken up with pickaxes and washed.

FIRE IN THE JERMYN COLLIERY, NEAR SCRANTON, PA.—A recent dispatch says: The fire in this mine continues with unabated vigor, and is rapidly making its way into the solid coal. Owing to the obstructions which the firemen are forced to encounter, it is feared that it will be impossible to stay the spread of the flames unless the mine was flooded. The workmen, however, have succeeded in removing the piles of rock which had fallen, and the fire was soon surrounded. Three powerful streams were poured upon the burning mass, and the flames are kept from spreading. The rock above the fire has been falling all day from the effect of the heat. Thomas Fox, a laborer, was struck by a piece of rock and seriously injured. On account of the vapor and gases which arise from the fire, the workmen have an arduous and sickening task, and have to be relieved at short intervals. The loss has already reached a large figure, but it cannot be estimated at present.

A NEW UNIT OF LIGHT FOR PHOTOMETRY.—In a paper read before the Physical and Chemical Sections of the British Association at Plymouth, A. Vernon Harcourt, F. R. S., etc., proposes as a substitute for the standard candle for photometric measurements, the use of hydrocarbon vapor mixed with air, and burnt through a large burner. The hydrocarbon used, is that portion of American petroleum, which, after repeated rectifications, distills at a temperature not exceeding 50° C., and consists almost entirely of pentine. the fifth member of the series of paraffines. To prepare the gas, he draws into a gasholder the required volume of air, chosen according to the capacity of the holder, and corrected for temperature, pressure and tension of aqueous vapor; then the corresponding portion of pentine is poured into the gasholder from a measuring flask, connected by means of glass and caoutchouc tubing to a tap in the upper plate. He proposes to maintain a proportion of 600 volumes of air to one of liquid pentine. A few minutes are sufficient for the volatilization of the liquid, and a few hours for a perfect diffusion. The unit which he proposes, and which he claims is adjusted to correspond to the light of a sperm candle consuming 120 grains of sperm per hour, is the light given by a mixture of 7 volumes of pentine gas with 20 volumes of air, burning from a ¼-inch orifice at the rate of a cubic foot per hour, under the standard condition of 60° F. and 30 inches pressure.

INDEX OF CURRENT TECHNICAL LITERATURE.

EXCHANGES.

[In this department will be given abstracts of the more important original articles contained in current technical periodicals at home and abroad.]

The following gentlemen have kindly consented to assist in making the reviews of current technical periodicals:

JOHN RANDOLPH, Mining Engineer, New York.
Prof. TROWBRIDGE, School of Mines, Columbia College, New York.
Prof. H. S. MUNROE, " " " " "
Prof. T. EGLESTON, " " " " "
ARTHUR F. WENDT, Mining Engineer, New York.
MANSFIELD MERRIMAN, Yale Scientific School, New Haven, Connecticut.
FRANKLIN GUITERMAN, Mining Engineer, Cincinnati, Ohio.
Prof. P. de P. RICKETTS, Ph. D., School of Mines, New York.
Prof. E. A. FUERTES, Cornell University, Ithaca, New York.

Colliery Guardian, Oct. 12.—The Board of Trade returns for coal and iron. (September, 1877, compares unfavorably with 1875 and 1876 in its coal exports... South Staffordshire and East Worcestershire Institute of Mining Engineers. (Report of proceedings of meeting Oct. 1, with papers)....Notes....Trade reports. A. F. W.

Engineering, Oct. 12.—Notes on torpedoes, No. XXII. (Illustration of manner of employing for harbor and channel defense.)....The Paris Exhibition, No. III. (Description with illustration of entrance to main vestibule.)....The Pennsylvania Railroad, No. XLI. (Standard tender for passenger engine.)....Consolidation *vs.* Fairlie engines. (H. Fry advocates the former and gives tables of performance.)....Anthracite blast furnace. (Designed by Weimer Machine Works.)....Railway accidents in 1876. (Attention directed to saving of life by use of automatic brakes.)....The Imperial Technical School in Vienna. (Description of.)....The new docks at Bristol. (Description and cost.)....The Aneroid, No. IX. (Construction, principles and uses.)....Strength of boilers. (Paper before Institute of Naval Architects at Glasgow meeting, by. I. Milton.)....The purification of iron. (Conclusion of paper by I. L. Bell.)....Machine for cutting bevel gear. (Plate and description of by G. H. Corliss. A. F. W.

Sept. 21.—Notes on torpedoes, XXI. (Electric fuses, signaling, etc.)....The Pennsylvania Railroad, XXXVII. (Cost of locomotives.)....Notes on some early locomotives in the United States....The direct process of iron manufacture. (Some further remarks by C. Wm. Siemens.) (Paper read before Iron and Steel Institute at Newcastle)....Improvements in Belgian Threehigh Rolling Mills, by Alp. Thomas. (Paper read before Iron and Steel Institute)....The manufacture of coke (Durham), by A. L. Steavenson. (Paper read before Iron and Steel Institute)....Cast-steel guns, by M. Gautier. (Paper read before Iron and Steel Institute)....Proceedings of the Iron and Steel Institute....The Paris Exhibition, No. I (description and plan)....Improvement of entrance to Galveston harbor, by Chas. W. Howell. (Paper read before American Society of Civil Engineers)....The mines of Cornwall and Devon, by Warrington Smyth. ....Firing mines, by J. H. Striedinger. (Paper read before American Society of Civil Engineers.)

Sept. 28.—The strength of unstayed flat surfaces, by Robt. Wilson....Report of proceedings of Iron and Steel Institute Meeting....The utilization of slag. (Paper read before Iron and Steel Institute, by Chas. Wood.)....The Paris Exhibition, No. II....The Pennsylvania Railroad XXXIX....Cost of locomotives (continued)....Locomotive fire boxes (continued)....Combined boring and turning machine, by Messrs W. B. Bement & Son, of Philadelphia....On mechanical puddling, by R. Howson. (Paper before Iron and Steel Institute.) ....The direct process of iron manufacture, by C. Wm. Siemens. (Paper read before Iron and Steel Institute)....The purification of iron. (Paper before Iron and Steel Institute), by I. Lowthian Bell.

Oct. 5.—The Clausthal Lead Smelting Works, No. III, by J. Clark Jefferson. (Description of blast furnaces)....The Pennsylvania Railroad XL. (Cost of locomotives concluded)....Continuous railway brakes (experiments)....The Prince's dock, Bombay, T. Ormiston, Engineer....Metropolitan Gas Companies ....Iron and Steel Institute, report of proceedings....The strength of gun-metal. (Experiments at Portsmouth dock-yard)....Locomotive fire-boxes (concluded.) ....Cause of blisters on blister steel, by John Percy. (Paper before Iron and Steel Institute....The mines of Cornwall and Devon, by Warrington Smyth. ....The purification of iron (continued), by I. Lowthian Bell. A. F. W.

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STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative Statement for the week ending Oct. 27, and years from Jan 1st.

Tons of 2,240 lb.	1877. Week.	1877. Year.	1876. Week.	1876. Year.
Wyoming Region.				
D. & H. Canal Co.	54,637	1,352,106	53,807	1,525,302
D. L. & W. RR. Co.	67,451	1,414,807	67,937	1,449,364
Penn. Coal Co.	31,474	809,370	31,412	853,496
L. V. RR. Co.	25,271	699,135	19,351	779,712
P. & N. Y. RR. Co.	1,000	34,436	447	18,695
C. RR. of N. J.	35,519	1,008,813	28,672	1,065,138
Penn. Canal Co.	13,090	279,961	16,151	347,464
	227,442	5,618,718	157,777	6,049,171
Lehigh Region.				
L. V. RR. Co.	88,337	2,754,622	96,663	2,188,720
C. RR. of N. J.	36,283	1,210,404	34,568	1,124,818
D. H. & W. B. RR.	1,551	24,225	1,203	35,992
	126,171	3,975,251	132,434	3,349,530
Schuylkill Region.				
P. & R. RR. Co.	156,391	5,578,577	176,310	3,845,624
Shamokin & Lykens Val.	11,977	590,921	28,661	777,803
	168,368	6,169,498	204,971	4,623,427
Sullivan Region.				
Sul. & Erie RR. Co.	527	16,008	353	28,462
Total	522,508	15,799,475	495,535	14,040,590
Increase	26,973	1,758,885	....	....
Decrease	....	....	....	....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent. of the whole production.

Receipts and shipments of coal at Chicago, Ill., for the week ending Oct. 27, and year from January 1:

	Week. Tons.	Year. Tons.
Receipts	41,349	1,356,792
Shipments	7,257	300,561

Belvidere Delaware RR. report for week ending Oct. 27.	Week.	Year. 1877.	Year. 1876.
Coal for shipment at Coal Port (Trenton)	7,501	27,214	238,577
" " " " South Amboy	11,657	462,732	357,691
Coal for distribution	5,470	137,341	142,938
Coal for Company's use	1,932	60,617	50,107

The shipments of coal at Cleveland, Ohio, for the week ending Oct. 29 were as follows: shipped coastwise, 6,905 tons; total for year, 236,749 tons; foreign shipments, 1,621 tons; total for year, 72,789. Total of coastwise and foreign shipments for week, 3,526; for year, 309,538 tons.

The decrease of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania, Railroads amounts to 121,638 tons, as compared with the corresponding period in 1876.

Perth Amboy business:	Tons.
Received for the week	32,511
Shipped for the week	17,350
On hand Oct. 27	107,672

The Exports of Coal from Baltimore for the week ending Oct 27 were 397 tons, and since January 1st, 24,705 tons as against 22,589 tons for the corresponding period of 1876.

Shipments of coal at Pictou, N.S., for the week ending Oct. 27 and year from January 1:

	Week.	Year
To Canada	1,454	48,709
" United States	....	20,212
" Other Provinces	3,313	66,883
West Indies	....	1,626
Total tons	4,761	137,430

The production of Bituminous Coal for the week ending Oct. 27 was as follows:

Tons of 2,000 lb., except where otherwise designated.

Cumberland Region, Md..	Week, Tons.	Year, Tons.
Tons of 2,240 lb	42,003	1,277,566
Barclay Region, Pa.		
Barclay RR. tons of 2,240 lb	3,332	268,236
Broad Top Region, Pa.		
Huntingdon and Broad Top RR.	†	109,868
*East Broad Top	1,100	41,729
Clearfield Region, Pa.		
*Snow Shoe	1,288	30,977
*Tyrone and Clearfield	26,627	1,073,920
Allegheny Region, Pa.		
*Pennsylvania RR.	3,079	146,558
Pittsburg Region, Pa.		
*West Penn. RR.	4,725	145,087
*Southwest Penn. RR.	702	31,247
*Penn & Westmoreland gas coal, Pa. RR.	23,350	541,409
*Pennsylvania RR.	10,064	297,270

* For the week ending Oct. 21.
† This report was not received this week.

The Production of Coke for the week ending Oct. 21.

Tons of 2,000 lb.	Week.	Year.
West Penn. RR.	1,063	47,258
Southwest Penn. RR.	13,548	497,951
Penn & Westmoreland Region, Penn. RR.	1,693	51,930
Pittsburg, Penn. RR.	1,611	89,619
Total.	17,915	686,758

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Nov. 2, 1877.

Anthracite.

Upon the whole the business of the past week has been a very quiet one, those who had the lowest prices, however, doing a very good business.

We are again entertained with a little newspaper talk about a coal combination to regulate next year's business, and there may be a little more discussion among the officials of the companies, but there has been no definite shape given to it, nor is there any prospect that anything will be done.

We have been flooded with new freight circulars issued to meet the decline in the price of coal. The Reading Co., in the main, reproduces the circulars in force earlier in the year and which appeared in this JOURNAL of M'ch, 24 & 31 1877. It, however, issues the following additional and very important circulars:

CIRCULAR NO. 16—1877.

PHILADELPHIA, October 29, 1877.

On and after this date, until further notice, in addition to the rebate as per circular No. 14, dated October 26, a drawback of twenty cents per ton will be paid on the tolls upon Anthracite coal shipped by canal from Schuylkill Haven and Port Clinton, through Delaware & Raritan Canal, to New York and points beyond.

CIRCULAR NO. 17—1877.

PHILADELPHIA, Oct. 29, 1877.

On and after this date, until further notice, in addition to the rebate as per circular No. 15, dated 26th inst., a drawback of 10 cents per ton will be paid to shippers, on anthracite coal shipped from Port Richmond (not passing through the Delaware & Raritan Canal) and consigned to points east of New York.

CIRCULAR NO. 18—1877.

PHILADELPHIA, Oct. 29, 1877.

An allowance of 25 cents per ton will be made on the excess of coal on hand at Port Richmond at the close of business, Oct. ,27, over that on hand at the close of business Aug. 26, being the difference between the rates in force between above dates and those now charged.

Circular No. 15, described in No. 18, is as follows:

CIRCULAR NO. 15—1877.

PHILADELPHIA, Oct. 26, 1877.

From Oct. 29, 1877, until further notice, and at the option of the shipper, the Main Line freight and tolls upon all anthracite coal shipped from Port Richmond, wherever consigned, will be one-third of the price at which the said coal is sold on board at Port Richmond; provided, the minimum rate of freight and tolls shall not be less thad $1 per ton on stove coal, and 90 cents on all other sizes: and, provided, that the regulations realtive to the adjustment of freight and tolls under the circular issued by the secretary be fully complied with.

Circulars Nos. 16 and 17 give shippers a lower rate than they have ever had bofore.

The Lehigh Valley Railroad Company has reduced its through rate on coal 10 cents per ton and claims that this is as much as it can possibly allow. This, however, does not meet the present requirements of the market, much less future prospects. Not long since the Philadelphia *Ledger* asserted, from official figures, the ability of this road to meet all its fixed charges and to declare a dividend upon even less rates of freight than are now offered, and we can hardly think that the management will lose its business if a lower rate than has ever yet existed should be required to hold it.

The Reading Company continues the prices mentioned in these columns, at which it sold coal last week, and is doing a very active business.

Under date of November 1 the Delaware & Hudson Canal Company issued the following circular:

The following will be the prices for our "Lackawanna' coal, delivered free on board at Rondout, (the towing from New York Harbor to Rondout and return at the expense of this Company), per ton of 2,240 lbs.:

Furnace Lump	$2 65	Stove	$3 10
Steamer Lump	2 65	Chestnut	3 05
Grate	2 65	Chestnut No. 2, or Pea	1 75
Egg	2 80		

For points on the North River and North 15 cents less is charged, except on pea coal which is the same for all shipments.

A. S. Swords quotes Pittston coal at Newburg for Eastern shipment, towing at his own expense to and from Newburg, as follows:

Lump and steamer.	$2 70	Stove	$3 00
Grate	2 70	Chestnut	2 80
Egg	2 80	Pea	2 30

For North River and northern shipment the prices are 10 cents per ton less, except on pea coal which is the same for all points.

Other prices are nominally unchanged, although there is considerable under-cutting going on.

The production of anthracite coal for the week ending the 27th of October was 522,508 tons, as compared with 464,599 tons the previous week, and 495,535 tons the corresponding week of 1876. The total shipments from January 1 have been 15,799,475 tons, as against 14,040,590 tons for the corresponding period of 1876, showing an increase this year of 1,758,885 tons.

Bituminous.

Both Cumberland and Clearfield coals are falling off in production. In the business we learn of nothing of importance, except a sale of 5,000 tons of Cumberland coal at Baltimore at, it is said, a very low price. Freights are advancing at Baltimore, while there is also a strong demand for vessels at Georgetown.

The approach of winter will bring with it the discussion of numerous important questions for the good of the trade for 1878. The most important of these, however, is that of wages which has been discussed frequently in these columns. The great loss of the trade by the Cumberland region, the low prices of anthracite coal, with prospects of lower ones, and, of course, greater competition, should impress upon the mining Companies of the Cumberland district the great necessity of making a radical reduction in the wages of all classes of labor in their employ. We shall treat upon this subject more fully at some later day. The Clearfield region is paying lower wages than Cumberland, but must exercise the strictest economy in other respects also, if it would make the ends meet.

New York.

Wholesale Prices of Anthracite Coal f. o. b. at the Tide Water Shipping Ports per ton of 2240lb.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
Wyoming Coals.						
*Lackawanna at Rondout	2 65	2 65	2 65	2 80	3 10	3 05
†Pittston at Newb'g (A.S Swords)	2 70	2 70	2 70	2 80	3 00	2 80
Wilkesbarre at Port Johnston	2 60	2 60	2 70	2 75	3 00	2 60
Kingston at Hoboken	2 50	2 50	2 65	2 70	3 00	2 60
Lehigh Coals.						
Sugar Loaf, at Hobok. & Amb	3 50	....	2 85	2 85	3 00	2 60
Lehigh at Perth Amboy	3 50	....	2 85	2 85	3 00	2 60
Hazleton at Hoboken	3 50	....	2 85	2 85	3 00	2 60
Lehigh Coal Exchange	3 50	....	2 85	2 85	3 00	2 60
Mount Pleasant at Hoboken	3 50	....	2 85	2 85	3 00	2 60
Cross Creek at Port Johnston	....	....	2 85	2 85	3 00	2 60

* These prices are for the city and harbor of New York. For all points on North River and north of Rondout the price is 15 cents less.

† These prices are for the city and harbor of New York. For all points on North River and north of Newburg the price is 10 cents per ton less.

Boats towed by the D. & H. C. Co. at its expense to and from New York Harbor.

	Per ton.
Freight from Hoboken and Weehawken to New York	40c.
" " Elizabethport & Port Johnston to N. Y	40c.
" " South Amboy to New York	40c.

Freight by the boats of the companies from Hoboken, Port Johnston, Weehawken, South Amboy and Perth Amboy to New York City and vicinity 40c.

Wholesale Prices of Bituminous Coal.

For the above prices see our issue of October 27.

Retail Prices in New York.

Anthracite.

Per 2000 lbs.	Grate and Egg.	Stove.	Chestnut.
Pittston coal, delivered	$4 50	$4 50	$4 50
Lack. coal, delivered below 59th St.	4 00	4 00	4 00
*Wilkes-Barre, delivered	4 25	4 50	4 00
*Lehigh and Locust Mountain, del'd.	4 25	4 50	4 00

* These prices are for coal delivered below Canal Street The prices for coal delivered above that point are 50c. per ton more.

Bituminous.

Delivered, per ton of 2000 lb.

Liverpool House Orrel.	$18 00	American Orrel	$11 00
Liverpool House Cannel	18 00	Red Bank Cannel	7 00
American "	11 00	Cumberland	9 00
Cannelt'n Block, or splint	10 00		

Boston. Oct. 27, 1877.

The market presents few new features of interest.

We quote Boston wholesale prices as follows:

Anthracite, broken	$4 00@4 25	Cannel, English	$16 00
do. egg	4 00@4 25	do. Buckeye	10 00
do. stove	4 25@4 50	Lingan	4 50
Cumberland	4 50@4 75	Pictou	4 75
Clearfield	4 25@4 50	Penn	5 00@6 10
Westmoreland	6 00@6 10	Youghiogheny	6 00@6 10
Caledonia	4 25		

—*Commercial Bulletin.*

Milwaukee, Wis. Oct. 23, 1877.

Specially reported by Messrs. R. P. ELMORE & Co.

Retail price per ton of 2,000 lb.

Anthracite, egg, chestnut, and stove	$6 50		
Lehigh lump	$7 00	Connellsville coke on RR. track	$7 25
Briar Hill	$5 25	Straitsville	4 80

New Orleans, La. Oct. 26, 1877.

Specially reported by Messrs. C. A. MILTENBERGER & Co.

PITTSBURG COAL.

At wholesale (by boat load)	50c.	per bbl. of	180 lb.
To steamboats	55c.	"	"
" manufactories	60c.	"	"
" families	75c.	"	"
In hhds. (for shipment)	$7 00	per hhd. from 5 to 6 bbls.	

ANTHRACITE COAL.

Per ton of 2,000 lb.

At wholesale	$7 00 to 8 00
" retail	10 00 to 11 00

VIRGINIA CANNEL COAL.

At retail	$1 25	per bbl. of	180 lb

ST. BERNARD (KY.) COAL.

To steamboats	50c.	"	"
" families	70c.	"	"

Hamilton, Ont. Oct. 31, 1877.

Specially reported by H. BARNARD.

Retail Prices, Delivered per ton of 2,000 lb.

Scr. or Wilkes-B.	Grate	$5 00	Lehigh Lump		$6 00
" "	Egg	5 00	Brier Hill		5 50
" "	Stove	5 25	Massillon		4 50
" "	Nut	5 25	Smithing		5 50

Montreal. Oct. 31, 1877.

Specially reported by MESSRS. ROBERT C. ADAMS & Co.

Wholesale per 2,240 lb.

Scotch Steam	$4 00	Cape Breton Steam	$3 25
Pictou	3 75	Newcastle Smith's	5 00

Anthracite at retail. per 2,000 lb. delivered.

Richmond, Va. Oct. 31, 1877.

Specially reported by S. H. HAWES. Dealer in Coal.

Per ton of 2,240 lb., f. o. b.

Kanawha Canael	$9 00	New River Bituminous	$3 70
Coalburg Splint	5 70	Clover Hill Coal	3 00
Lewiston "	5 70	Norwood Gas & Steam Coal	2 70
Kanawha Gas Coal	4 90		

San Francisco, Cal.

From the *Commercial Herald* of Oct. 25, 1877.

COAL—Imports from January 1 to Oct. 1:

	Tons.		Tons.
Anthracite	17,974	Vancouver Island	77,039
Australian	55,159	Rocky Mountain	123
Coos Bay	23,834	Saghalien	40
Cumberland	8,083	Seattle	83,067
English	63,062	Bellingham Bay	8,600
Chili	7,635	Ione, Cal.	2,127
Mt. Diablo,	68,698	Carbondale, Cal.	177

We are pained to learn that there is some hitch in regard to the working of the Wellington mine, B. C., and that the cargo of the Shirley has been sold to the Central Pacific Railroad, and two other cargoes disposed of upon terms withheld. This Wellington coal is of very superior quality for family use, and has, under its late management, been very generally introduced into local use, being all screened, comparing favorably with the best West Hartley coals. In the the general market we have no advance or improvement to note. Imports are liberal, as will be seen by the tables annexed for nine months and the arrivals for the week under review. Of the latter we note the following: Per Br bark Dribhur, 1,750 tons Wallsend: Arcata, 360 tons Coos Bay; Br ship Cherwell, 1,500 tons Sidney: Santona, 638 tons Scotch: Charles Dennis, 2,161 tons Baltimore. In the absence of cargo sales we quote Australia, $7; Coast, $6.50.

The following gives the comparative imports for the first nine months:

Foreign.	1876. Tons.	1877. Tons.	Increase. Tons.	Decrease. Tons.
Australian	94,646	55,159	....	39,486
English	58,009	73,062	15,053	....
Vancouver	76,747	77,039	292	....
Chile	2,076	7,635	5,559	....
Eastern.				
Anthracite	10,346	17,974	7,628	....
Cumberland	9,251	7,968	....	1,283
Domestic.				
Mount Diablo	86,409	68,638	....	17,771
Coos Bay	29,636	23,836	....	5,802
Bellingham Bay	16,395	8,600	....	7,795
Seattle	69,064	83,067	14,003	....
Rocky Mountain	163	123	....	40
Summit	22	....	....	22
Ione, California	....	2,127	2,127	....
Oonalaska	....	40	40	....
Buckeye	....	41	41	....
Carbondale, Cal.	....	177	177	....
Totals	452,763	425,484	44,920	72,199
Decrease this year.	....	27,279		

Rates of Transportation on Anthracite Coal to Tide Ports.

Schuylkill Coals.

per ton of 2240 lb.

	From Pine Grove.	From Tamaqua.	From Schuylkill Haven.	From Port Clinton.
To *Port Richmond*, via P. & R. R. R., Main Line, for shipment	1 45	1 40	1 25	....
Harrisburg, via Lebanon Valley Branch	98	1 37	1 22	....
Allentown, via East Pennsylvania Branch	1 22	1 17	1 02	....
Lancaster, and Points on Lancaster Branch, via R. & C. R.R.	1 30	1 25	1 10	....
Dauphin, via Schuylkill and Susquehanna Branch	70	1 18	1 03	....
Slatedale Junction, via Berks and Lehigh ranch	1 34	1 29	1 14	....
Lebanon, via Lebanon and Tremont Branch	81	....	....	....
Philadelphia via Schuylkill Canal, including freight and charges for the use of cars and barges and for tolls (exclusive of cost of unloading)	....	....	1 15	1 04
New York via Schuylkill Canal, including freight and charges for the use of cars and barges and tolls on the Schuylkill Canal and Delaware and Raritan Canal and the towing between Fairmount and Bordentown and between New Brunswick and New York (exclusive of cost of unloading)	....	....	2 00	1 89

From *Tamanend*, to *Catawissa*, *McAuley*, *Mainville*, *Rupert*, and *Danville*, via Catawissa and Williamsport Branch Railroad 90

From *Tamanend* to *Williamsport*, *Hall's*, and *Montoursville*, via Catawissa and Williamsport Branch Railroad 1 25

Coal sent to points on the Catawissa and Williamsport branch will be charged one and one-half cent per ton per mile, and two cents per ton additional to Tamanend.

An additional charge of 25 cents per ton will be made on Chestnut and Pea Coal to whatever point consigned. If the shipper signs a release of all demands arising from a deficiency of weight at the place of destination, and agrees to indemnify the company from all claims by reason thereof, such additional charge will not be made. Releases, properly prepared, will be furnished, and can be signed at the coal offices of the company, at St. Clair, Palo Alto, Schuylkill Haven, Mount Carbon, Pine Grove, and Tamaqua.

For shipment via Main Road or Schuylkill Canal, one and one-half cent per ton per mile, and two cents per ton additional to Schuylkill Haven, Pine Grove, Tamaqua, or Port Clinton, for Canal, as the case may be. Provided no charge shall be less than 15 cents nor greater than 45 cents per ton.

For consumption at local points in coal region, including Shamokin, Herndon, Schuylkill Haven, Pine Grove, and Tamaqua, three cents per ton per mile, and two cents per ton additional; and a charge for *car service*, of fifteen cents per ton to individuals, and five cents per ton to manufacturers, when in Philadelphia and Reading Railroad cars. Provided no charge including freights, tolls, and car service, shall be less than twenty-five cents per ton.

Sent westward via Northern Central Railway (in N. C. R. W. Co.'s cars), four and two-tenths cents per ton per mile, to Locust Gap, Shamokin, or Herndon. Provided no charge will be made less than fifteen cents per ton.

One mile extra will be added for coal passing through the East Mahanoy Tunnel.

Fractions of distances and rates will always be stated in *tenths*.

No charge will be made for weighing or making returns of coal shipped, and the latter will be furnished free of charge, upon application to the Weighmaster; if these returns are to be sent by mail, envelopes, properly stamped and addressed, must be furnished to the Weighmasters.

All coal will be charged the rates (both lateral and Main Line) current on the day it is weighed; it will also be way billed on the same day.

Freights

Per ton of 2240 lb.

Representing the latest actual charters to Nov. 1, 1877.

PORTS.	From Philadelphia.	From Baltimore.	From Georgetown.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Augusta, Me.	....	....	....	1 75
Albany	....	....	....	....
Alexandria, Va.	....	....	....	....
Brooklyn, N.Y.	....	....	....	....
Bangor, Me.	....	1 90	2 00	1 40
Bath, Me.	1 75	1 85	.. ..	1 40
Baltimore	55@65	....	....	....
Boston, Mass.	150@170	185@190	1 85	1 40
Bridgeport, Ct.	95	1 60	1 60	70
Bristol, R. I.	....	....	1 60	90
Beverly, Mass.	....	..	....	1 25
Cambridgeport, Mass.	1 78	.. ..	....	1 40
Charlestown, Mass.	1 60	....	....	....
Danversport, Mass.	1 70	....	....	....
East Cambridge, Mass	165@180	....	....	....
Fredericksburg, Va.	....	....	....	....
Fall River	1 25	1 60	1 60	90
Gloucester	....	....	....	....
Georgetown, D.C.	75	.. ..	....	..
Hartford, Conn.	140@160	....	....	40
Hoboken	....	....	....	40
Hudson, N.Y.	70*	....	....	....
Jersey City	....	....	1 40	40
Lynn, Mass	1 80	....	....	....
Medford, Mass.	....	....	....	....
Middletown	....	....	....	90
Milton Mass.	1 50	....	....	..
Nantucket, Mass.	....	....	....	90
New Bedford	1 25	1 65	1 70	90
Newburyport	....	2 00	....	1 60
New Haven	†75	1 60	1 60	70
New London	....	1 60	1 60	70
Newport	1 25	..	....	90
New York	75@95	1 45	1 50	40
Newark, N J.	....	....	....	....
Norfolk, Va.	65	....	....	....
Norwich	105@125	....	....	90
Pawtucket	....	....	1 65	1 00
Philadelphia	....	....	....	....
Portland	150@155	1 85	1 85	1 40
Portsmouth, N. H.	1 60	2 00	2 00	..
Providence	1 25	1 60	1 60	....
Rockland, Mass.	....	....	....	....
Rockport	....	....	....	....
Richmond, Va.	80	....	....	....
Saco	2 00	....	....	1 65
Salem, Mass.	1 60	1 90	....	1 40
Saugus, Mass.	....	....	....	....
Savannah, Ga.	1 25	....	....	....
Somerset, Mass.	1 25	....	1 60	90
Troy	1 12	....	....	....
Wareham	....	....	....	....
Washington	70@75	....	....	....
Wilmington, N.C.	1 25	....	....	..
Williamsburg, N. Y.	95	....	....	....

* And discharging and towing. † And discharging. ‡ And towing. § 3c per bridge extra.

Lake Freights on Coal.

Representing the latest actual charters to October 30.

From Buffalo to Chicago	0.50
" " " Milwaukee	0.45
" " " Kenosha, Wis.	0.60
" " " Saginaw Mich	0.50
From Cleveland to Chicago	0.50
" " " Milwaukee	0.50
" Oswego, N.Y., to Chicago	0.75
" " to Milwaukee	0.70

Rates of Toll

For the above we refer to our issue Sept. 8.

For freights on *Lehigh and Wyoming Coal* we refer to our issue of Sept. 15.

Freights on Bituminous Coals from the Mines to Tide Water Shipping Ports.

For the above see issue of Sept. 15.

IRON MARKET REVIEW.

New York.

FRIDAY EVENING, Nov. 2, 1877.

American Pig.—There is a fair demand for good brands of Lehigh iron, but inferior brands are rather quiet. We note sales in lots of about 800 tons of No. 1 foundry and 400 to 500 tons of No. 2 foundry on the basis of $18@19.50 for No. 1. The efforts made to fill contracts entered into in the spring and summer in connection with the business that is doing, gives considerable activity to shipments. There is no speculative feeling observable yet, and no indications of a material change in prices at an early day. We quote No. 1 foundry at $18@19; No. 2 $17@18, and forge, 16@17.

Scotch Pig.—The business in this article has been entirely in small lots, but of sufficient magnitude to absorb about all of the arrivals, which are small. There has, however, been 100 tons of Eglinton placed in store—the first for several months. We quote Eglington at $23.75; Coltness, $24.25, and Glengarnock, $26.

Rails.—During the past month the business in steel rails has amounted to fully 50,000 tons, 20,000 tons of this was sold during the week under review at prices ranging from $40@41 at mill. Quite an addition will probably be made to these sales during the coming week. We also note sales of 2,000 tons of light steel rails, and 600 tons of light iron rails for Western delivery. We quote steel rails at $40@43 at mill; iron rails, $33@36.

Old Rails.—A sale of 4,000 to 6,000 tons is reported to have been made to some Philadelphia concerns. We quote nominally at $18.

Wrought Scrap.—A sale of 200 tons at a low price is reported. We quote $22.50@23.50.

Baltimore, Md. Oct. 29, 1877

Specially reported by Messrs. R. C. HOFFMAN & Co.

The iron market continues to be moderately active, with purchasers for present use only at about quotations.

Baltimore Charcoal	$20@30	Mottled and White	$15@16 00
Virginia Charcoal	28@30	Charcoal C. B. Blooms	50@55 00
Anthracite No. 1	19@20	" " Billetts.	55@60 00
" " 2	18@19	Refined Blooms	45@50 00
Anthracite No. 3	17@18		

Boston. Oct. 27, 1877.

Pig continues in very good demand, and our outside prices are now easily obtained. The demand is in small lots for immediate consumption, and there is little speculative feeling. We quote $21.50 for No. 1; $20@20.50 for No. 2, and $19.50@20 for gray forge.

Bar continues unchanged, quoting $43@45 for refined, and $35@36 for common. Nails are in light demand at unchanged prices. Sheet is selling at 2¾@3c. per pound. Russia is quiet at 12c. currency. We quote, English spring steel at 7@8c. gold; 9@11c. for German; 9@11c. for machinery; 14@16c. for cast; 10@12c. for blister; 8c. for American spring; 13½@14c. for cast, 9c. for blister, and 8c. for machinery.—*Commercial Bulletin.*

Buffalo. Oct. 27, 1877.

Specially reported by PALEN & BURNS.

No. 1 Ex Foundry	$20 55
No. 2 "	19 55
Gray forge	18 55
American Scotch A 1 Foundry	24 00
Cherry Valley B 1 "	23 00
" " No. 2 "	22 00

Per gross ton 4 months delivery here.

Chattanooga, Tenn., Oct. 30, 1877.

Specially reported by J. F. JAMES, dealer in pig iron, ores, etc

PIG IRON.—The market here during the past week has been a shade more active. Considerable shipments of foundry grades have been made South and Southwest. Fair inquiry for mill grades, and several offers at a shade below market prices on six month's time have been declined. No change in prices.

BAR AND SHEET IRON.—Mills full of orders at present low prices.

OLD RAILS, CAR WHEELS AND SCRAP.—In fair demand. Some few sales effected at cash rates. I quote unchanged prices, free on cars at furnaces.

Louisville, Ky. Oct. 30, 1877.

Specially reported by Messrs. GEORGE H. HULL & Co.

There is a good demand for foundry irons at the prices that have ruled for some months, as there is no dimunition in the pressure to sell, these prices are not likely to improve for some time to come. The usual time, four months, is allowed on the quotations below.

FOUNDRY IRONS.

No. 1 Hanging Rock, Charcoal	$23 00@24 00
No. 2 " " "	20 00@21 00
No. 1 Southern Charcoal	20 00@21 00
No. 2 " "	19 00@20 00

No. 1 Hanging Rock, Stonecoal and Coke	20 00@22 00
No. 2 " " " " "	19 00@20 00
No. 1 Southern Stonecoal and Coke	19 00@20 00
No. 2 " " " " "	18 00@19 00
"American Scotch"	20 00@22 00
Silver Gray	18 00@19 00
MILL IRONS.	
No. 1 Charcoal, Cold-short and Neutral	18 50@19 50
No. 1 Stonecoal and Coke, Cold-short and Neutral	18 00@18 50
No. 2 " " " " "	17 50@18 00
No. 1 Missouri and Indiana Red-short	21 00@22 00
White and Mottled, Cold-short and Neutral	15 00@16 00
CAR-WHEEL AND MALLEABLE IRON.	
Hanging Rock, and Cold Blast	34 00@38 00
Alabama and Georgia "	2[illegible] 00@33 00
Kentucky Cold-blast	25 00@33 00

Philadelphia, Pa.

[Weekly Report of the Philadelphia Iron Market, furnished for THE ENGINEERING AND MINING JOURNAL, by JUSTICE COX, Jr., & Co., Iron Merchants, 333 Walnut Street, Philadelphia, Week ending Nov. 1, 1877.]

PIG IRON.—The light demand for pig has brought about a desire, on the part of some producers, to sell; hence we hear of one or two sales at slightly lower prices than quoted. Yet, all first class brands hold firm for full quoted price, and generally get it. It is hoped this month will bring a good contrast, as navigation will close probably before another month sets in. We report sales of about 2,000 tons, and quote No. 1, $18@$20; No. 2, $17@$18.50; Gray Forge, $16@$17.50.

MANUFACTURED IRON.—The demand for Bars continues very dull, and few sales are reported. The wonder is how few bars are selling at this time. The demand for Plate and Tank is not so brisk as at our last, few new orders being reported, the old orders keeping most mills in this neighborhood busy. Nothing new in Shelf is reported. We quote Bars 2c.@2 1-10c. per lb. Plate and Tank 2⅞c.@6½c. per lb. Skelp 2 1-10c.@2¼c. per lb.

RAILS.—The steel rail combination having fallen through, we hear of all kinds of prices being offered and accepted; yet nothing authentic can be reported. We quote $43@$45 at mill.

IRON RAILS.—The very low prices accepted for some large lots have demoralized the market, and most mills ask full prices and get what they can. We quote $33 @ $35 at mill.

OLD RAILS.—The demand for old rails continues good, and first class lots bring full quoted prices. We report sale of 200 tons double heads at $21 Phiadelphia. We quote $19@$20 Philadelphia.

OLD WHEELS—Are hard to move at any price. We quote $17@$20.

SCRAP WROUGHT—Is in plentiful supply, with few takers. We quote $20@$24. Cast is quoted without buyers at $12@$16.

MUCK BARS are quoted without sales at $33@$36 Philadelphia.

Pittsburgh, Pa. Oct. 30, 1877.

Specially reported by A. H. CHILDS

The metal market is without material change since last report. The demand continues good for foreign, and standard brands meet with ready sale at current prices. Foundry irons remain dull. Quotations are:

	4 mos.		4 mos.
No. 1 F'dry	$21 00@22 00	Mottled&White	$16 50@18 00
" 2 "	20 00@21 00	Hot blast C'coal	21 00@25 00
Gray Forge	18 00@20 50	Cold " Western	38 00@40 00

Richmond, Va. Oct. 30, 1877.

Specially reported by ASA SNYDER, Esq.

There has been considerable inquiry for old rails recently at $18 f. o. b. in this city. Red short mill irons are also in considerable demand. Charcoal wheel pig iron sells readily, but in some instances slightly under quotations. Foundry brands are firm and active at quotations.

Virginia Cold Blast Charcoal Pig Iron, cold short		$20 to $26
" " " " " " neutral		28 to 31
" Warm " " " "		20 to 25
" Anthracite	1 X	20 to 22
" "	2 X	19 to 21
" "	2	18 to 19
" " Coke West Va.	1 X	22 to 23
	X2	21 to 22

St. Louis, Mo. Oct. 31, 1877.

Specially reported by Messrs. SPOONER & COLLINS, Commission Agents for all kinds of Iron.

Pig iron is still active, the demand is good, and present prospects show no possibility of a decline. We quote same as last, although cheap lots are constantly being offered here at reduced prices. Our quotations are for standard brands of pig iron only.

COLD BLAST CHARCOAL—ALL NUMBERS.			
Hanging Rock	25@38	Assorted Bar Iron	$2, rates.
Tennessee	26@30	No. 1 Wrought Scrap	80c. cwt.
Kentucky	26@30	Heavy cast "	65 "
Missouri	26@30	Light " "	55 "
Georgia	26@30	Old rails	19 00 to 20 00
Alabama	26@30	Old car wheels	17 00 to 18 00

	No. 1.	No. 2.	Mill.	White and Mottl'd.
Missouri stone coal	$22 00	$21 00	$20 00	19 00
" charcoal	22 00	21 00	20 00	20 00
Tennessee charcoal	22 50	21 00	20 00	19 00
Tenn. coke very soft and strong	23 00	21 00	20 00	18 50
Hanging Rock charcoal	25 00	24 00	23 00	.....
" " cold short	24 00	23 00	.....	.....
	Ex No.1	No. 1.	B No. 1.	No. 2.
Alice Hanging Rock coke	$25 00	$24 50	$24 00	$22 50
Quinnimount, W.Va., coke	23 50	23 00	22 00	21 00

San Francisco, Cal.

From the *Commercial Herald* of Oct. 25, 1877.

The market continues sluggish for all descriptions. The *City of Tokio*, from China, brought 50 blocks Tin. Imports of Tin-plate for nine months show a falling off of 26,000 boxes as compared with a like period of 1876; of Pig-iron there is a falling off of 3,000 tons; of Iron Pipe there has been a large increase; of Sheet Iron a large falling off. In the absence of sales quotations are nominal.

METALS.

NEW YORK, FRIDAY EVENING, Nov. 2, 1877.

The business in metals has been rather quiet during the past week, with nothing to give much encouragement for the balance of the year.

Gold Coin.—During the week under review the price of gold has ranged from 102⅝ to 102⅞, and closed at 102⅝.

Bullion.—The market has no feature except its steadiness at about 55d in London, 119@119¼ in this city and 9 per cent. discount in San Francisco. This strength is probably given by the wild monetary schemes proposed in Congress. As these will probably not succeed, the market is more likely to recede than advance materially, unless the English Government should decide to spend large amounts on public works in India.

Daily Range of Silver in London and New York per oz

Date.	London. Pence	New York. Cents	Date.	London. Pence	New York. Cents
Oct. 27	55	119⅛	Oct. 31	55	119¼
" 29	54¾	118½	Nov 1	....	119¼
" 30	54 15/16	119	" 2	55	119¼

BULLION SHIPMENTS.

We give below a statement showing the amount of the latest bullion shipments, in addition to that announced in our issue of Oct. 27:

Date.	Mine.	Location.	Amount.
Oct. 16	Northern Belle	Nevada.	$ 4,763
" 24	California	"	†586,831
" "	Con. Virginia	"	‡341,312
" 20	Geneva Con.	"	1,360
" 16	Arizona	"	1,500
" 15	Standard	"	41,823

† The product of this mine for the first nine months of the present year was $13,963,567 67, making with the product to the 24th ult. $14,550,398 67.

‡ This mine yielded during the first nine months of the year $6,469,562 49, which, with the amount given above, makes a total of $9,810,874 49. At this rate the production of these two mines for the year 1877 should amount to nearly $10,000,000.

The Philadelphia Mint Coinage for October was as under--

	No. of pieces.	Value.
Gold:		
Double eagles	88,740	$1,774,800.00
Silver:		
Trade dollars	594,050	594,050.00
Half dollars	458,450	229,225.00
Quarter dollars	800,050	200,012.50
Twenty cents	50	10.00
Dimes	574,050	57,405.00
Total	2,515,390	$2,855,502.50

No base metal was coined during the month.

UNITED STATES ASSAY OFFICE.—Statement of business for the month ending Oct. 31, 1877:

Deposits of Gold--	
Foreign Coin	100,000 09
Foreign Bullion	45,000 00
United States Bullion	825,000 00
" " " (re-deposits)	85,000 00
Jeweler's Bars	60,000 00
	$1,115,000 00
Deposits of Silver—	
Jeweler's Bars	$11,000 00
Foreign Coin	13,000 00
Foreign Bullion	18,000 00
United States Bullion (contained in gold)	9,000 00
United States Bullion (re-deposits)	52,000 00
" " " Colorado	255,000 00
" " " Idaho	500 00
" " " Lake Superior	1,700 00
" " " Montana	26,800 00
" " " Nevada	210,000 00
" " " New Mexico	26,000 00
" " " Utah	35,000 00
	658,000 00
Total Deposits	$1,773,000 00
Gold bars stamped	$678,426 45
Silver " "	905,597 72
Transmitted to Mint of the United States at Philadelphia, for coinage, silver	343,296 52

Gold Receipts from the Black Hills.—For the four months ending with September 30th, there was received at the U. S. Assay Office $730,000 in gold from the Territories of Dakotah and Wyoming, of which amount Dakotah contributed $676,000, and Wyoming $54,000.

Effects of Stopping the Trade Dollar Coinage.—The San Francisco *Commercial Herald* of the 25th ult. says: "Dr. Linderman's order, to stop coining trade dollars, has fallen like a bombshell on those in this city who have large commercial dealings with China. The trade dollar was especially authorized to foster and enlarge our relations with China, and to act as an offset against the Mexican dollar, then so much in vogue by the Chinese, as well as to work off the surplus silver of this country and insure a profitable market for it at the Orient. It has fulfilled these several functions with decided success, and the export of that coin has not fallen short this year of $750,000 per month in exchange for a large variety of Chinese goods. There was at first some difficulty in getting the Chinese to accept it on equal terms with the Mexican dollar, but that being overcome, it has since received preference. Its influence has been realized in largely improved trade with that country, and as the fall trade is much the most active it seems strange that Dr. Linderman should select this time to order its coining stopped; nor is the injury that will surely attend his action in this matter be at all modified by the fact —which there is reason to believe he was well aware of—that two or three heavy firms in this city have been hoarding trade dollars for a long time in expectation of some such move, and now have large amounts to dispose of with every assurance of great profit, as the coin has already risen in value from 96 to 99 cents. The coining of trade dollars necessarily beared the bullion market, and it is possible that Dr. Linderman expects to bull the market and reduce the price of silver bullion to facilitate Government purchases at low prices. It is, however, very positive that the injury inflicted on our commerce by such speculative proceedings on the part of the Director of the Mint will far more than counterbalance any prospective good he may hope to realize. Dr. Linderman offers as one reason for his remarkable order, that there is no present demand for the trade dollar. This is inexcusable ignorance on his part, to say the least, as our exports of that coin for the past nine months reached $7,237,780, against $3,774,146 for the first nine months of last year—a gain of $3,463,634, or fifty per cent. It is also worthy of remark, that no such excuse as want of demand was advanced last year when trade dollars were from 8 to 10 per cent. discount, but now that they are only 2 per cent. discount and the export has doubled, with China, and in the very height of the most prosperous season, an order is issued to stop coining them, on the score that they are not in demand!"

San Francisco Mint Coinage.—The *Commercial Herald* of the 25th ult., gives the following, showing the amount and description of coinage for the first nine months of 1874, 1875, 1876, and 1877 was as follows:

	1874.	1875.
Double Eagles	$17,500,000	$18,325,000
Eagles	50,000	50,000
Half Eagles	35,000	90,000
Quarter Eagles	.....	29,090
Trade Dollars	2,038,000	2,839,000
Half Dollars	197,000	1,497,000
Quarter Dollars	98,000	123,000
20-cent. pieces	.....	231,000
Dimes	24,000	423,000
Totals	$19,942,000	$23,607,000
	1876.	1877.
Double Eagles	$23,700,000	$26,200,000
Eagles	50,000	55,000
Half Eagles	20,000	32,500
Quarter Eagles	12,500	5,000
Trade Dollars	3,334,000	8,465,000
Half Dollars	1,519,000	1,380,000
Quarter Dollars	1,705,000	1,540,000
Dimes	928,000	181,000
Totals	$31,268,500	$37,858,500

Copper.—Small sales have been made during the week at 17¾c. At the close a small amount of copper can be purchased at the same figure, although for large quantities 18c. would be demanded. For deliveries up to Jan. 1, 18c. is asked. For deliveries after that date 18⅛c. is asked and 18c. bid. Chili Bars in London, according to the latest cable information, had declined another 10s. per ton. On the 6th inst. the Wallaroo sale will take place. It is reported that there will be 600 tons of Wallaroo offered and 200 tons of Burra Burra. Upon this sale largely depends the price of fine copper.

Tin—We are reported a sale of 100 tons of Straits, to arrive, at 15½c. Sales on spot to the extent of 300 to 400 slabs at 16@16⅛c have been made. We quote at close, in gold, per lb., as follows: Straits, 16⅛@16 16¼c; Refined (all held by one house) nominally at 16¼@16⅜c; L. & F., 16c asked, and Banca 18c. The cable quotations in London are: Straits, £70; Refined, £76 10s, and L & F. £74. In Singapore $20 per picul, with exchange at 4s.

Lead.—We are reported sales of 450 to 500 tons of lead at prices ranging from 4.45c@4.75c, mostly at prices from 4.45c.@4.55c. The market is now decidedly stronger, and may be quoted at 4¾c@5c, with most of the lead held at the latter figure.

Tin Plates.—These are being dealt in in a jobbing way. We quote, in gold, per box, as follows: Charcoal tins, $6.37½@6.50, and ternes $6.12½; coke tins, $5.50@5.62½, and ternes $5.50.

Messrs. Robert Crooks & Co., of Liverpool, under date of Oct. 18th, say of tin and terne plates:—"The position has not changed in any respect, either as regards the market as a whole, or as regards the various kinds. Several further sales have been made at very low figures, and the feeling strongly is that rates will be lower still."

Spelter and Zinc.—Spelter is quiet, and still quotable at 5 70c@5¾c; sheet zinc, with but little doing, is quoted at 7⅜c@7½c.

Antimony.—Cookson's is nominal, at 13c.@13½c., and ordinary at 12¼c. We are informed that the market will soon be relieved by liberal arrivals of Cookson's.

Quicksilver.—The *Commercial Herald* of the 25th ult. says of this article: We have very little of general interest to remark. Ever since our largest buyer and consumer was driven to Hongkong for supplies, our market seems to have lost its high position, and trade has ever since languished, with a steady falling off in exports to China. The present nominal price is 45c. The *Belgic*, for Hongkong, carried 365 flasks, and to Japan 5 flasks.

Our exports by sea for the nine months of 1876–7 were:

	1876.		1877.	
To.	Flasks.	Value.	Flasks.	Value.
New York	2,994	$125,002	608	$19,618
Mexico	4,023	171,300	7,019	243,566
Chili	400	17,611	325	11,485
New Zealand	264	10,898	170	5,949
China	17,643	712,670	27,306	971,903
Japan	286	10,897	378	13,948
Central America	177	6,999	32	1,166
Australia	733	29,803	1,285	45,167
Honolulu	....	....	1	38
British Columbia	9	346	19	742
South America	2,057	80,464	2,319	79,352
Calcutta	....	....	50	1,570
England,	650	19,590	....	....
Totals	29,236	$1,186,580	39,512	$1,394,504

The Quicksilver exports by sea for the past week were 370 flasks, valued at $12,930. Receipts for the week, 1,267 flasks.

Salt Lake Ore and Metal Market.

SALT LAKE CITY, UTAH, November 2, 1877.

Argentiferous Lead (Base Bullion).—$40@42 per ton for lead; $1.17@$1.18 per ounce for silver; $20 per ounce for gold. The quotations for silver are based upon the silver contents in the lead of 80 to 120 ounces per ton of 2,000 lb.

The *Inter-Ocean* correspondent under date of the 26th ult. says:

"There is an improved feeling in the bullion market, and sales of forty cars are reported to have been made to day at $40 per ton for the lead, and $1.18 per ounce for the silver—all to the Omaha Smelting and Refin- Company.

The *Emma* has commenced shipping ore, but no doubt it is some that has been assorted from what was on hand when it closed down. There can be no doubt but this is a great property, and as it is being worked by about thirty men, we shall hear from it before long.

The *Carbondale* still promises to be an immense mine, and preparations are being made to work it all winter.

Leeds continues to yield a steady increase of the royal metals, and were it not for the low price of lead we would be doing a rushing trade.

Our special correspondent, under date of the 23d ult., gives the following statement showing the bullion and ore shipments for the week ending Oct. 20:

BULLION.

Consignor.	Consignee.	Lbs.
Germania Smelting works	...Hagan & Billing	20,976
Mingo "	...Pittsburg	170,643
Telegraph "	...Pittsburg	189,105
Waterman "	...Pittsburg	165,640
Pascoe "	...Pittsburg	42,620
Morgan "	...Crook's Bros	109,853
Williams "	...Omaha	21,959
DuRell "	...Omaha	85,060
		805,846

ORE.

Scott& Anderson Mine	.....Hilliard		60,250
Telegraph "	.....Hilliard		240,050
Flagstaff "	.....Hilliard		147,620
Winnamuc "	.....Omaha		22,150
Yosemite "	.....Sacramento		220,000
			690,070

During the week fifteen cars of Waterman lead, to arrive, were sold at $40 for lead and $1.17 per ounce for silver. Also ten cars of DuRell and Pascoe, mixed, leads at $37.50 for lead, and $1.17 for silver.

FINANCIAL.

New York Stocks.

NEW YORK, Friday Evening, November 2, 1877.

The market for the coal shares, as compared with their history for months, has been a fairly steady one, while the transactions in the same comparison have been small. There has been some talk of a coal combination, apparently the outgrowth of the financial article in the Philadelphia *Ledger* of October 29, but from all we can learn entirely without foundation. The sales of Delaware and Hudson Canal have aggregated 13,138 shares at 46⅝@45, closing at 46¼. Delaware, Lackawanna and Western Railroad has ranged between 52¼ and 49¾, closing at 50½, with sales for the week of 108,974 shares. The sales of New Jersey Central Railroad have amounted to but 1,205 shares, declining from 17 to 13¾, and closing at 14. The public does not appear to take a favorable view of the value of this stock under the proposed reorganization scheme.

Western Maryland Railroad.—The Cumberland *News* of the 19th ult. says: "At the annual meeting of the stockholders of this company on the 17th inst., the gross receipts for the year ended September 30 were reported to have been $332,085.87, and the total expenses, $219,940.83; net earnings, $112,145.30. The earnings were $20,183.32 greater than in 1876, and the expenses $4,384.39 greater. There was a decrease in passenger receipts, caused by the suspension of travel during the labor troubles. The growing importance of the road is shown by the fact that in 1870 the revenue was $137,968, with a steady increase to 1876, when it was $311,902, and 1877 when it is $332,085, not including $25,486.32 in 1876, and $28,214.95 in 1877, which was earned upon the tracks of the Northern Central and Baltimore and Potomac roads, and turned over to those companies in payment for the use of certain terminal facilities, etc. Owing to the active competition between the Baltimore & Ohio Railroad and the Chesapeake & Ohio Canal, this company was compelled to reduce the rate of transportation on bituminous coal from Williamsport to a little less than one cent per ton per mile, so that the coal carrying trade has not proved the most lucrative feature of the company's business."

Central Railroad of New Jersey.—It is authoritatively stated that a plan has been devised for the reorganization of this company. It is stated that the time for payment of the floating debt is to be extended to 1880, both principal and interest to be paid in twelve installments. The holders of the second mortgage bonds are to receive for two year's interest preferred stock to the amount of $2,800,000, being 7 per cent. on $20,000,000 of bonds, the stockholders to pay an assessment of $10 per share, for which they are to receive preferred stock to the amount of $2,000,000 and 10 per cent. of the present capital stock is to be converted into preferred stock—$2,000,000. Reorganized, the obligations of the company will stand as under—

First mortgage bonds	$5,000,000
Second mortgage bonds	20,000,000
Preferred stock	6,800,000
Common stock	18,000,000
Total	$49,800,000

Should this scheme be adopted, as it now seems probable, the bonds of the road and those guaranteed by it will be much benefitted, and it is stated that certain shrewd speculators have already been quietly buying them up.

This plan will not result in a return to the Lehigh Navigation Company of its canals and railroads.

Consolidation Coal Co.—The Trustees of this Co. advertise that they will receive proposals for the sale of the 2d Mortgage bonds of the Cumberland and Pennsylvania RR. Co. to the amount of $20,000 in cash for the Sinking Fund.

Maryland Coal Co.—This Co. advertises that it will receive proposals for the purchase of its 1st Mortgage Sinking Fund bonds for cancellation, to the amount of $10,000.

Teal Lake Iron Mining Co.—A special meeting of the stockholders of this company will take place November 19th.

Liberty Oil Co.—This company has declared a dividend of 3 per cent.

Coupons and Interest on the Bonds of the following companies will fall due during the present month:

Buffalo Union Iron Works.—Coupons.
Chester & Tamarora Railroad Co.—Coupons due.
Cumberland & Pennsylvania Railroad.—Coupons paid at office Consolidation Coal Co.
Joliet Iron & Steel Co.—Coupons due.
Milwaukee Iron Co.—Coupons due.
Morris & Essex Railroad Co.—Coupons paid by Del. Lack. & Western Railroad Co.
Oswego & Rome Railroad.—Coupons.
Oswego & Syracuse Railroad Co.—First mortgage bonds of 1875. Interest paid by Del. Lack. & Western Railroad Co.
Rensselaer & Saratoga Railroad Co.—Coupons paid by Delaware & Hudson Canal Co.
Richmond Iron Mining Co.—Coupons due.
Rome, Watertown & Ogdensburg Railroad Co.—Coupons.
Utica, Chenango & Susquehanna Valley Railroad Co. Coupons.
West Branch & Susquehanna Coal Co.—Second mortgage bonds coupons due.
Wilmington Coal Mining & Manufacturing Co.—Coupons due.
Delaware & Hudson Canal Co.—Registered interest; loan of 1877 coupons and Albany city bonds to Albany & Susquehanna Railroad and sinking fund and equipment bonds coupons.

Miscellaneous Sales and Quotations.

Sales and quotations of the stocks and bonds dealt in here at Philadelphia, and Baltimore for the week ending the 2d inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.

	Quotations. Highest.	Lowest.	Closing.	Sales Shares
American Coal Co	—	—	35	—
*Cambria Iron Co	—	—	50	—
*Pennsylvania Salt Manf'g Co.	—	—	64	8
*Westmoreland Coal Co	—	—	62	—
*Buck Mountain Coal Co	—	—	25	—
*Schuylkill Nav. Co	—	—	—	—
St. Louis, I. M. & S. RR. Co	—	—	8	—
Spring Mountain Coal Co	—	—	30	—
†Balt. & Ohio RR. Co. pref	—	—	—	—
" " " common	—	—	100	—
†Pittsburg & Connellsville RR.	—	—	—	—
†George's Creek Coal Co	—	—	95	—
†Santa Clara Mining Co	—	—	8¼	—
†Atlantic Coal Co	—	—	1.25	—

BONDS.

L. & W. 7s, Convt., 1892	J. & D.	—	—	100	—
" " 2d mtge., 1881	M. & S.	—	—	105	—
N. J. C., 1st mtge., new	F. & A.	110¾	109¼	111	$30,000
" " 1st mt., cons. 1899	Q.	68¾	66½	68⅝	27,000
" " Convt	M. & N.	64½	64	64	11,000
L. & W. B. Coal Co., cons.	Q.	33⅞	33	33	59,000
Am. Dock & Imp. 7s	J. & J	—	—	52	—
D. & H. C. Co., 1st m., 1884	J. & J.	58½	—	58	3,000
" " " " 1891	J. & J.	101	—	100¾	1,000
" " " " 1877	J. & J.	—	—	—	—
" " " " reg., 1894	A. & O	—	—	—	—
" " " " coup., 1894	A. & O.	—	—	96½	—
St. L. I. M. & S., 1st mt. 1892	F. & A.	100	99¼	99½	4,100
Ches. & Ohio, 1st mt., 1899	—	—		26½	— 29 1,090
*L. V. RR., con. m. 6s, 1923	J. & D.	98	—	—	1,000
" " 2d m., 7s, 1910	M. & S.	112½	—	112½	1,000
" " reg., 1898	J. & D.	—	—	—	—
" " coup., 18 8	J. & D.	109⅛	—	—	2,000
*P. RR., 1st mtge., 1880	J. & J.	105¾	—	105¾	3,000
" Gen. mtge. reg., 1910	A. & O.	106	—	106	10,000
" Con. m. 6s, con.. 1905	J. & D.	—	—	93	—
" " reg. 1905	Q.	—	—	93	—
" gen M. Coup., 1911c	J. & J.	106¼	106	106	2,000
" New Loan 5s		107¼	107	—	11,300
*P. & R. RR., 7s, 1893	A. & O.	—	—	—	—
" " con. m. 7s. cou. 1911	J. & D.	101¾	—	101⅛	2,000
" " Deb. 6s, 1893	J. & J.	—	—	—	—
" " New convt. 7s. 1893	J. & J.	—	—	57	—
" " Con. mtge. 7s. reg.	J. & D.	101¼	—	101⅝	2,000
" " 6s, 44-80 1880	J. & J.	—	—	101½	—
*P. & R. C. & I. Co. Deb. 7s	M. & S.	—	—	60	—
*P. & R. C. & I. Co	—	—	—	—	—
*L. C. & N. Co. 6s. 1884	M. & O.	105	104	104	10,600
" " RR. loan 1897	F. & O.	—	—	—	—
" " Con. mtge. 7s.	J. & D.	—	—	—	—
" " Cvt. gold, 189	M. & S.	99½	—	—	1,000
" "Gold Loan, 1894	J. & D.	88½	87	86	8,000
Schuylkill Nav., 6s. 1897	M. & O	—	—	—	—
Pa, and N. Y. Canal, 7s.	J. & D.	110¼	—	109½	1,000
Pa. Canal Co	J. & J.	62⅜	—	62	7,000
Susquehanna Coal Co. 6s.	—	70	—	—	6,000
†Ches. & Ohio 1st m. 6s.	M. & N.	25¼	—	—	5,000
†Balt. & Ohio 6s. 1880	J. & J.	103¼	—	103	1,000
† " " 6s. 1885	A. & O.	—	—	103	—

Total transactions for the week.....$210,000

Philadelphia Stocks.

PHILADELPHIA, Nov. 2, 1877.

About 75,000 shares comprise the dealings in the Philadelphia stock market during the week just closed. The range in prices indicates a very steady market, the quotations at the close varying but little from those reported a week ago.

Lehigh Valley Railroad Stock closes firm at a slight advance on the price reported a week ago. This company has begun work on a short branch (about three miles) from the Lost Creek Breaker, near Shenandoah, Pa., west by south to Girardville. It will be known as the Lost Creek Branch, and will probably be hereafter extended to Ashland, two miles beyond Girardville.

Lehigh Coal & Navigation Co.—6,689 shares of this stock have changed hands during the week, at from 17⅛@15¾, closing at 16¾. At a meeting of the debenture bondholders of this company, held on the 29th ult., a proposition was made by the bondholders to extend the payment of two-thirds of the bonds for two, three, four and five years, provided the other third was paid in the consolidated seven per cent. bonds of the company, the two-thirds to be paid in four equal installments, and to be secured by a mortgage on property of the company valued at about $1,000,000. These bonds amount to $762,000, and there was quite a large representation of the holders present. It is said the company has accepted this proposition, and there can be no doubt it will be accepted by the loanholders.

Pennsylvania Railroad Co.—At a meeting of the Board of Directors of this company, on the 31st ult., it was decided not to declare any dividend for the November quarterly period. This decision was made in the following resolution passed by the Board:

Resolved, That notwithstanding the fact that the lines of this company are moving a large traffic, and at better rates than have prevailed during some time past, the Board of Directors deem it inadvisable to declare a dividend upon the capital stock at this time, believing it to be for the best interests of the shareholders to devote the net earnings to the restoration of the property, including the equipment, from the severe losses sustained, directly or indirectly, during the riot of July, 1877, and to the reduction of the floating obligations of the company.

The company has paid in dividends thus far this year 3½ per cent, 2 per cent. of which was in February, and 1½ per cent. in May, the August and November dividends being passed.

The Cumberland *News* says:

"The President and Directors of this Company have issued a pamphlet, arguing at length the necessity for the building of a railroad from Cumberland, Md., to connect with the Pennsylvania railroad, setting forth the advantages claimed for it, stating its cost, and giving reasons why the city should endorse $65,000 worth of its second mortgage bonds, and concluding with a list of the voting tax-payers and the amount of additional tax each would have to pay to introduce the new road on the plan proposed, at 54 cents on $1,000 of taxable property. The pamphlet also contains a copy of the ordinance, authorizing the issuance of the bonds, and states that a petition for its passage will be presented to the Cumberland City Council at an early day."

The sales of Pennsylvania railroad stock for the week aggregates 54,257 shares. The fluctuations do not call for special comment, being confined within the range of one per cent., the stock closing firm at the highest point of the week, viz., 29⅞.

The stock of the United Companies of New Jersey closes at 112 bid, and 113 asked.

Coupons and interest on the bonds of the following companies will fall due during the present month:

Camden & Amboy Railroad Co.—Coupons paid by Pennsylvania railroad.

Catawissa Railroad Co.—Coupons paid by Philadelphia & Reading Railroad Co.

Delaware & Raritan Canal Co.—Coupons paid by Pennsylvania Railroad.

Karthaus Coal & Lumber Co.—Coupons.

Lehigh Coal & Navigation Co.—Six per cent; loan due 1897; registered interest.

North Pennsylvania Railroad.—Second mortgage 7 per cent. bonds; coupons.

Pennsylvania Railroad Co.—United Co.'s loan, 1889; coupons.

Shickshiney Coal & Iron Co.—Coupons due.

Philadelphia Coal Co.—The annual meeting of this Co. will be held on the 12th inst.

The Philadelphia and Boston Petroleum Co. has declared a dividend of two cents per share.

Niagara Oil Co.—The annual meeting of this Co. will be held on the 12th inst.

Fulton Coal Co.—254 shares of the stock of this Co. were sold at auction during the week at $3⅛ per share.

Westmoreland Coal Co.—58 shares of the stock of this Co. were sold at auction during the week at $70 per share.

Clinton Coal and Iron Co.—The annual meeting of this Co. will be held on the 7th inst.

Copper Stocks.

Reported by Wilson W. Fay & Co., Bankers and Brokers Room 7, Traveler Building, 31 State Street.

BOSTON, THURSDAY EVENING, Nov. 1, 1877.

The market remains quiet with nothing of importance transpiring and very little stock changing hands. The sales for the past week have been lighter than usual, Calumet and Hecla, Quincy, Humboldt and Duncan taking the lead and the others far behind.

The price of Ingot Copper is a weight that certainly hangs heavy on the market, but there must be a change sometime in the price of copper, and the outlook indicates that it will be a favorable one, and then we can expect an increase in business and prices of stocks.

Calumet and Hecla sold as high as 175½ but has fallen off again and is now 173 bid and 175 asked. Central is quiet; being held in blocks by a few parties and consequently there is not much chance for the stock to circulate. It closes 35.00@37.00. Copper Falls remains unchanged with a little more stock on the market and few bidders. At close, 3.00@3.25.

Franklin has falled to 6.00 bid and 6.50 asked. Humboldt sold at .20 and closes .18@.20. Nothing new on National, the committee not having reported as yet. It remains .10 bid and .15 asked. Quincy sold at 38½, but is weaker now, closing 37.50 bid and 38.50 asked. Ridge is also weaker, closing 1¼@1¾. The other coppers remain quiet and unchanged.

Duncan Silver went up to 1¾ bid and sales at that figure but has dropped back to 1⅝ bid and 1¾ asked.

International is quiet and rather weak at .20@.22.

Although the week has been very quiet, which, we hope, will prove to be the calm before the storm.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Nov. 2, 1877.

The aggregate sales of mining shares on the New York Mining Stock Exchange during the operations of the week under review amount to 92,875 shares; this, with the sales of mining shares on the New York Stock Exchange, aggregate over 100,000 shares, a larger business than we have noted for a long time past. The bulk of the dealings have been in the low-priced shares, and from appearances we should judge that a number of the transactions were *bona fide*, indeed, some of these stocks have but a little lower to go before becoming worthless. Moose, as usual, has been one of the most prominent features in the operations of the Board, the transactions being nearly 16,000 shares, most of which were probably "washed." Lucerne again figures in the operations of the Board, some 3,300 shares having changed hands during the week.

The last quotation of this stock was in May last, when it brought $1.50 per share; the prices during the past week have ranged from 14c. to 19c. The American Consolidated Mining Co. of Boulder County, Colorado, was placed upon the Board on the 30th ult. The capital stock of the Company is $1,000,000, divided in $10 shares. The quotations have ranged from $3⅜ to $4⅛ per share, closing at $4, the sales amounting to 13,900 shares. The New York and Colorado Mining Co. reports its earnings for the month of September at $6,648 16; expenses $5,832 88, leaving $815,28 as profit. The quotations for the week have ranged from $2⅛ to $1⅞, at which prices the stock closed, 2,400 shares representing the transactions. Eureka Consolidated has changed hands to the amount of 375 shares; this stock closed in San Francisco, yesterday, at $47 per share. We note the statement that there is 80,000 tons of ore, actual measurement, in sight in this mine.

In the Comstocks the dealings have been very light and the quotations decidedly lower, the whole market showing declines ranging from 15 to 25 per cent. for the week.

The attention of operators and dealers in mining shares are gradually being directed to those mines outside of the Comstock Lode, both here and in San Francisco.

MINING STOCK QUOTATIONS IN SAN FRANCISCO.

We give below a table showing the closing price of mining shares in San Francisco yesterday, 1st inst.

Alpha	10¾	Mexican	9
Belcher	4¾	Northern Belle	15⅜
Best & Belcher	18	Ophir	14⅜
Bullion	4	Original Comstock	..
Caledonia	4	Overman	16¾
California	27¾	Raymond & Ely	7
Chollar Potosi	30	Santiago	..
Con. Imperial	1	Savage	8
Con. Virginia	28	Seg. Belcher	32
Confidence	3½	Sierra Nevada	4¾
Crown Point	5	Silver City	..
Eureka	46	Silver Hill	1¾
Exchequer	5¼	South Comstock	..
Gould & Curry	9	South California	..
Hale & Norcross	5½	Southern Star	..
Indian Queen	..	Trenton	..
Julia	2	Union Con	6
Justice	9¼	West Belcher	..
Kentuck	6	Yellow Jacket	9¼
Kossuth	..	Young America	..
Leopard	1		

The *Commercial Herald* of the 25th ult. says of the market: "The mining stock market during the past week has not kept up to previous rates, and in volume the transactions have been fewer. However, the activity heretofore noted in a large influx of small-priced stocks continues, and in this class of shares most of the Board business is now done—in fact, we never saw such a heavy business as is now done in this 'wild-cat' class of stocks. They have assumed a sort of legitimate position, and the rapid introduction of new companies seems to be most convincing proof of the favor they have obtained. The gamble seems to be set to a much lower key than formerly, but it has had such a successful inaugurated and long run in small worthless stocks, that to maintain it seems to be the business of a goodly class of respectable brokers, the work apparently being well spiced with wash sales of a more than trifling amount, and for which we think there ought to be some punishment. The market exhibits considerable weakness at the close, showing more than usual indifference on the part of outside investors. It will be seen that the present extensive manipulation of outside stocks has awakened the assessment echoes in that line of securities."

The following table exhibits the sales in the San Francisco Stock and Exchange Board for the first nine months of 1874, 1875, 1876 and 1877:

Month	1874	1875	1876	1877
Jan.	$28,513,745	$42,563,475	$28,701,785	$18,355,160
Feb.	16,365,620	19,435,535	17,204,105	9,393,545
Mch	17,080,245	15,737,640	35,925,385	9,534,805
Apr.	16,783,510	14,657,505	20,736,485	9,160,550
May	12,213,035	19,949,615	10,788,195	5,786,920
June	14,627,405	12,641,485	12,643,440	10,874,985
July	12,145,000	20,110,715	17,332,845	5,633,965
Aug.	11,927,385	18,463,680	14,900,560	8,050,785
Sept.	22,394.895	.....	16,639,775	8,098,235
Tot.	$152,050,840	$163,559,650	$174,872,575	$84,928,950

It will be observed from the above that the sales of stocks for the first nine months of the present year have been only about one-half in amount as compared with that of a similar period for the three previous years.

The Gold Hill *News* of the 24th ult. says: "All along the mining range work is being actively pushed ahead by both old and new mines, and all are making full preparations for a good Winter's campaign. Long trains of firewood arrive daily over the Virginia & Truckee Railroad, and huge piles of that necessary article are rapidly accumulating about the various mining works. At last the Savage and Hale & Norcross pumps are in full work, and tumbling that great ocean of hot water out of the depths at a very lively rate. It is already reduced below the 1,900-foot level, and will be kept reduced, allowing of a renewal of developments at that level forthwith, after a rest of a couple of years. It will be recollected that a few years ago the question was mooted as to whether the hot water found in the Comstock might not have some connection with the hot water of Steamboat Springs, which lies some seven miles to the northwest. Professor Gunning does not consider this at all improbable. The hot water which came rushing in to submerge the Savage and Hale & Norcross a couple of years ago, was tapped by cutting through the west wall, and during the past year or two the volume of hot water at Steamboat Springs has decreased very materially, some of the springs having ceased their flowing ebullitions entirely. We are not laying down this theory as an actual fact, but merely printing it for discussion and reflection.

As showing the disposition for active mining development all along the Comstock, we publish the following list of assessments:

Baltimore Consol.	$42,000	Leviathan	25,000
Belcher	104,000	Mint	5,000
Bullion	150,000	New York	40,000
Caledonia	75,000	Savage	112,000
Chollar-Potosi	74,000	Prospect	40,000
Crown Point	100,000	Consol. Imperial	100,000
Comstock	10,000	Sierra Nevada	50,000
Cosmopolitan	25,000	Seg. Rock Island	3,000
De Haro	15,000	Union Consol	25,000
Gould & Curry	108,000	Utah	40,000
Hale & Norcross	112,000	Yellow Jacket	240,000
Knickerbocker	25,000	Alta	54,000
Kossuth	16,200		
Lady Washington	60,000	Total	$1,650,200

One of the latest of the above assessments is that of the Alta, which has been levied merely to properly open the mine and prepare for extraction and milling of the valuable ore bonanza being developed at the 1050-foot level. Active work is resumed in the Trojan mine, and before many days it will be supplying mills with the material for making bullion bricks, as there is plenty of good pay ore already developed in the mine. In a year from now Alta and Trojan will both be paying dividends. Yellow-Jacket will also resume her place among the dividend-paying mines in the course of two years from now.

The material in the face of the header of the Sutro Tunnel has become somewhat harder, working to better advantage, and allowing of some degree of advancement, although close and careful timbering is still in order. Nothing new in the matter of the compromise with the Comstock mining managers. It is under close and careful consideration."

The *Merrimac Silver Mining Company* has declared its regular monthly dividend of one per cent.

The *Hukill Gold and Silver Mining Company* has declared its regular monthly dividend of one per cent. The stock of this company is steady. Sales for the week amount to 2,400 shares.

The *Ontario Silver Mining Company* produced for the month of October $166,000 bullion. The mill was run but twenty-five days, having been shut down six days to clean out the dry kiln. 1,625 shares of this stock have been sold during the week at from $23⅜ to $23¾ per share.

INCORPORATIONS.

We note the recent organization of the following companies, in addition to the announcements in our issue of October 6:—

Name of Company.	Location.	Capital Stock.
Jack Rabbit Silver Mining Co.,	Nevada	$10,000,000
North Central Mining Co.,	"	10,000,000
Ralston Silver Mining Co.,	"	10,000,000
Diana Gold and Silver Mining Co.,	"	10,000,000
Ruby & Clover Mountain Con. Mica Co.	"	10,000,000
Tuscarora Consol'd Mill. & Mg. Co.,	"	10,000,000
White Lead Mining Co.,	"	10,000,000
Culver Gold and Silver Mining Co.,	"	10,000,000
General Connor Mining Co.,	"	5,000,000
St. Louis Mining Co.,	"	10,000,000
Redan Silver Mining Co.,	"	10,000,000
Falcon Mining Co.,	"	10,000,000
Sapphire Gold and Silver Mg. Co.,	"	10,000,000
Real del Monte Mining Co.,	"	5,000,000
Red Cloud Mining Co.,	"	5,000,000
Nevada Amalgan Refining Co.,	"	250,000
Albert Gravel Mining Co.	"	400,000
Passaic Mining Co.,	"	1,000,000
Hope Con. Mill & Mining Co..	"	2,000,000
Thistle Mining Co.,	"	10,000,000
Morgan Mining Co.,	California,	10,000,000
South Spring Hill Mining Co.,	"	6,000,000
Black Hawk Gold Mining Co.,	"	5,000,000
Sacramento Gravel Mining Co.,	"	350,000
Big Oak Flat Gravel Mining Co.,	"	260,000
Timmychal Mining Co.,	"	100,000
Dry Creek Gold Mining Co.,	"	100,000
Steep Hollow Gold Mining Co.,	"	100,000
Christain Gold & Silver Mining Co.,	"	10,000,000
Utah Gold & Silver Mining Co.,	"	3,000,000
Columbia Petroleum Co.,	"	600,000
Humboldt Mining Co.,	"	5,000,000
Excelsior Coal Co.,	"	100,000
Tymmychub Mining Co.,	Arizona,	100,000
General Lee Silver Mining Co.,	"	10,000,000
Silver Crown Mining Co.,	"	10,000,000
Nequilla Silver Mining Co.,	"	10,000,009
Seventy-Six Silver Mining Co.,	"	1,000,000
Central City Tunnel Co.,	Colorado.	1,200,000
Purblo Iron Co.,	"	150,000
San Juan Reduction Co.,	"	40,000
Ouray Mining Co.,	"	30,000
Christy Mill & Mining Co.,	Utah.	6,000,000
Gardiner Mountain Mining Co.,	N. Hamp.	600,000
White Ledge Gold " "	"	1,000,000
Fall Creek Copper Mining Co.,	Oregon.	350,000
N. Brunswick Anthracite Coal Mining Co.,	New Brunswick, Can.,	300,000

The Baltimore Consolidated Mining Co. of Nevada, has increased its capital from $5,400,000 to $8,400,000.

Assessments with Dates when Delinquent.—Sierra Nevada Mining Co., 50c. per share, delinquent Nov. 21st. Union Cons. Mining Co., 25c. per share, delinquent Nov. 19th. Alta Mining Co., 50c. per share, delinquent Nov. 24th. Patten Mining Co., 20c. per share, delinquent Nov. 24th. Dexter Mining Co., 3c. per share, delinquent Nov. 21st. Eagle Mining Co., 25c. per share, delinquent Nov. 24th. North Dayton Gold and Silver Mining Co., 10c. per share, delinquent Nov. 24th. Cons. Imperial Mining Co., 20c. per share,

COAL TRANSPORTATION AND GENERAL MINING STOCKS.

Name and Location of Company.		Feet on Vein.	Capital Stock	Shares No.	Shares Par Val.	Assessments. Total levied to date.	Assessments. Date and amount per share of last. Mo.	Yr.	Amt.	Dividends. Total paid to date.	Last Dividend. Mo.	Yr.	Amt.	Rate per Ann.	Highest and Lowest Quotations per Share in Currency. Oct. 27. H.	L.	Oct. 29. H.	L.	Oct. 30. H.	L.	Oct. 31. H.	L.	Nov. 1. H.	L.	Nov. 2. H.	L.	Sales.
Coal Stocks.			$			$				$				Per cent.													
Consol. Coal	Md.	....	10,250,000	102,500	$100	*	.....	.....	.....	....	Jan..	1877	2½	10	..	..	..	..	..	..	..	..	..	..	..	..	....
Del. & H. Canal	Pa.	....	20,000,000	200,000	100	*	.....	.....	.....	38,821,104	Aug.	1876	4	8	46¾	45¾	46¾	45	46½	45¾	46½	45½	46½	45⅝	46¼	46¼	13,738
Del., Lac. & W.RR.	Pa.	...	26,200,000	524,000	50	*	.....	.....	.....	....	July	1876	2½	5	52¼	51½	51⅜	49⅞	51⅛	50¼	51⅛	50¾	50¾	49¾	51	50⅜	108,074
Lehigh C. & N.	Pa.	....	10,448,550	208,971	50	*	.....	.....	.....	.. .	Sep.	1876	1½	6	17⅜	16¾	16⅜	15¾	16⅛	16⅜	16⅛	16⅜	16⅛	16⅜	17⅛	16¾	6,689
Lehigh Valley RR.	Pa.	....	27,042,900	540,858	50	*	.....	.....	.....	....	Oct.	1877	1	5	38¾	38⅜	38⅜	38¼	38½	38⅜	38¼	38	..	..	39	38½	1,336
Maryland Coal	Md.	....	4,600,000	44,000	100	*	.....	.....	.....	....	Jan..	1876	1½	1½	..	..	..	..	..	..	..	..	..	..	..	..	....
N. J. Central RR.	Pa.	....	20,600,000	206,000	100	*	.....	.....	.....	....	Apr.	1876	2½	10	17	16½	16⅞	15	..	..	16	16	..	..	15	13¾	1,205
Penna. Coal	Pa.	....	5,000,000	100,000	50	*	.....	.....	.....	....	Aug.	1877	3	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Pennsylvania RR.	Pa.	....	68,868,700	1,377,376	50	*	.....	.....	.....	....	May.	1877	1¾	10	29¾	29½	29¼	29½	29⅜	29¼	29¼	28¾	29⅜	28⅜	29⅞	29⅞	54,257
Phil. & Read. RR.	Pa.	....	34,278,755	685,575	50	*	.....	.....	.....	....	Jan..	1876	2½		13⅞	15	15	14½	15⅛	15	15	14⅞	15¼	15	15⅜	15¼	13,212
General Mining Stocks																											
Alpha Cons. g. s.	Nev.	300	3,000,000	30,00	100	210,000	Aug.	1877	$1 00	....	.. ..	....	.....	..	12½	..	12½	..	..	..	..	..	10	..	..	..	300
American	Colo.	....	1,000,000	100,000	10	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	3¾	3¼	4¼	4	4⅛	4	4⅜	4	13,900
Am. Flag, g	Colo.	5-300	600,000	60,000	10	*	.....	.....	.....	...	.....	.....	.....	..	15c	13c	14c	13c	14c	12c	14c	12c	12c	..	13c	11c	14,800
Belcher. g. s.	Nev.	1 040	10,400,000	104,000	100	1,072,400	Sept	1877	1 00	15,397,200	Apr.	1876	$1 00	12	5⅛	5¼	6⅛	..	5	..	..	..	4¼	4	4¼	..	,00
Bertha & Edith g	Vir.	645 acs.	3,500,000	350,000	10	*	.....	.....	.....	....	.....	.....	.....	..	7c	..	10c	7c	7c	..	8c	5c	6c	5c	..	..	9,550
Best and Belcher, g. s.	Nev.	545	10,080,000	100,800	100	337,792	Aug.	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Bobtail, g	Colo.	2,500	1 '36,630	227,326	5	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Bobtail Tunnel, g	Colo.		100,000	20.000	5	6,000	July	1873	0 30	20,000	Dec..	1876	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Bullion, g. s.	Nev.	943½	10,000,000	100,000	100	2,702,000	Oct.	1877	1 50	....	.....	.....	.....	..	9⅝	..	8¾	..	7¾	..	4¼	4⅜	4⅛	..	..	..	1,100
Caledonia, g. s.	Nev.	2,188	10,000,000	100,000	100	1,435,000	Oct.	1877	75	....	.....	.....	.....	..	3	..	3	..	3	..	..	..	2½	..	2½	..	600
California, g. s.	Nev.	600	54,000,000	540,000	100	....	.....	.....	.....	19,440,000c	Oct.	1877	2 00	24	..	..	..	..	..	..	..	..	28¼	..	..	..	50
Chollar Potosi, g. s.	Nev.	1,400	2,800,000	28,000	100	1,496,000	Oct.	1877	3 00	3,080,000	Feb..	1872	1 00	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Cleveland, g	Colo.	3,715	250,000	25,000	10	*	.....	.....	.....	....	.....	.....	.....	..	5⅜	..	6	5¾	5⅞	5½	7	5¾	7⅛	7	..	..	2,800
Cons. Hercules & Roe.	Colo.	16,500	1,000,000	100,000	10	*	.....	.....	.....	120,000	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Cons. Imperial, g. s.	Nev.	468	50,000,000	500,000	100	575,000	Oct.	1877	0 20	....	.....	.....	.....	..	1¾	1⅝	..	..	1¾	..	..	..	..	..	..	..	1,600
Con. N. Slope & E.C.T.	Colo.	15,000	500,000	10,000	50	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Cons. Virginia, g. s.	Nev.	710	54,000,000	540,000	100	474,600	June	1873	3 00	33,480,000	Oct.	1877	2 00	24	29½	..	..	..	..	..	..	..	..	..	..	..	100
Confidence, g. s.	Nev.	130	2,496,000	24,960	100	243,840	Mar.	1873	1 00	78,000	May.	1865	8 ½	..	..	..	6	..	6	..	..	..	3½	..	3½	..	900
Crown Point, g, s.	Nev.	600	10,000,000	100,000	100	1,573,370	Sept.	1877	1 00	11,588,000	Jan..	1875	2 00	24	..	..	..	..	..	..	..	..	..	..	..	..	....
Douglas	Colo.	21,000	1,000,000	10,000	100	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Eureka Cons. g. s. L.	Nev.	..	5,000,000	50,000	100	100,000	May	1876	1 00	1,150,000	Oct.	1877	3 00	..	..	..	47	..	..	..	46¾	46	47	..	..	..	375
Eureka G. Mg. g	Cal'f		2,000,000	20,000	100	....	.....	.....	.....	2,134,000	Aug.	1877	2 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Exchequer, g. s.	Nev.	400	10,000,000	100,000	100	280,000	Sept.	1876	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Gould and Curry, g. s.	Nev.	621	10,800,000	108,000	100	2,352,000	Aug.	1877	1 00	3,934,800	Oct..	1870	10 00	..	..	..	9	..	8¾	..	..	..	..	..	..	..	200
Granville Gold	N. C.	9,000	1,000,000	100,000	10	*	.....	.....	0 50	....	.....	.....	.....	..	20c	20c	24c	22c	26c	24c	..	..	..	..	..	..	2,000
Hale & Norcross, g. s.	Nev.	400	11,200,000	112,000	100	2,634,000	Oct.	1877	1 00	1,598,000	Apr.	1871	1 00	12	..	..	6½	..	..	..	..	..	..	..	3¼	..	300
Henry Tunnel	Nev.	3,000	2,000,000	80,000	25	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Hukill, g. s.	Colo.	3,288	1,000,000	100,000	10	*	.....	.....	.....	10,000	Nov.	1877	0 10	12	4⅝	4¼	4⅝	..	4¾	..	4⅞	4¼	4½	4½	4⅝	4⅞	2, 00
Julia Cons., g. s.	Nev.	3,000	11,000,000	110,000	100	440,000	Aug.	1877	1 00	..	.....	.....	.....	..	2	..	2	..	..	..	1¾	..	..	..	..	..	300
Justice, g. s.	Nev.	2,100	10,500,000	105,000	100	1,817,500	Aug.	1877	1 50	....	.....	.....	.....	..	11	..	10½	..	10½	..	8⅞	8¾	..	..	9⅝	..	600
Kentuck, g. s.	Nev.	95	3,000,000	30,000	100	270,000	Dec..	1874	1 00	1,252,000	Mar.	1870	5 00	..	..	.	6½	6¼	6½	..	6⅞	6¾	6¼	..	6¼	..	1,100
Kossuth, g. s.	Nev.	2,700	5,400,000	108,000	50	421,200	Aug.	1877	0 15	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Lacrosse	Colo.	3,900	1,000,000	100,000	10	*	.....	.....	.....	....	.....	.....	.....	..	32c	30c	32c	30c	31c	30c	32c	..	31c	30c	32c	30c	12,500
Leopard, L. g. s.	Nev.	1,500	5,000,000	50,000	100	100,000	July.	1877	50	162,500	Dec..	1876	0 50	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Lucerne Mining	Colo.	4,200	5,000,000	500,000	10	*	.....	.....	.....	....	.....	.....	.....	..	16c	15c	17c	16c	19c	16c	18c	..	..	..	..	..	3,300
Mariposa, preferred	Cal.	44-387	5,000,000	50,000	100	1,425,000	June	1877	1 00	....	.....	.....	.....	..	1¾	..	..	..	..	..	..	..	..	..	..	..	100
" common	"	acres.	10,000,000	100,000	100	1,425,000	June	1877	1 00	..	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Memphis	Colo.	6,000	300,000	60,000	5	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	10c	..	..	..	100
Merrimac, s	Mass.	1,500	500,000	50,000	10	*	.....	.....	.....	85,000	Sept.	1877	40c	12	..	..	..	..	..	..	..	..	..	..	..	..	....
Mexican, g. s.	Nev.	600	10,080,000	100,800	100	151,440	Aug.	1877	0 30	....	.....	.....	.....	..	..	..	..	..	..	..	9⅛	9	..	..	..	..	200
Moose	Colo.	39,000	2,000,000	200,000	10	....	.....	.....	.....	100,000	Oct.	1877	0 25	..	6⅜	..	6½	6¾	6¾	6½	7	6⅝	6⅞	5⅝	5¾	6½	15,700
N. Y. & Colo., g	Colo.		1,000,000	50 000	20	*	.....	.....	.....	20,000	Mar.	1877	0 20	..	2½	2	2⅝	1⅞	..	..	⅞	..	2¼	1⅞	2	1⅞	2,400
Northern Belle, s	Nev.	1,600	5,000,000	50,000	100	...	.....	.....	.....	1,400,000	Oct.	1877	1 00	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Ontario.	Utah	3,000	10,000,000	100,000	100	....	.....	.....	.....	550,000	Oct.	1877	50	6	23½	..	23⅛	23⅝	23¾	23⅜	23⅜	..	23⅜	23⅛	..	..	1,625
Ophir, g. s.	Nev.	675	10,080,000	100,800	100	2,934,400	May.	1875	2 00	1,394,400	Mar.	1874	4 00	..	..	..	14⅞	14¾	14¼	..	..	..	14	..	15⅜	..	600
Original Comstock, g. s.	Nev.	....	10,000,000	100,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Overman, g. s.	Nev.	1,200	3,840,000	38,400	100	2,452,680	June	1877	3 00	....	.....	.....	.....	..	17	..	..	..	17⅜	..	16	..	17½	..	..	..	600
Pleasant View, g	Colo	1,200	200,600	20,000	10	*	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Quicksil. preferred	Cal.	8,500	4,291,300			*	.....	.....	.....	....	.....	.....	.....	..	40	38	41	39	38⅜	36½	36	35¼	..	..	..	..	4,250
" common	"	acres.	5,708,700	100,000	100	....	.....	.....	.....	....	.....	.....	.....	..	17⅛	16	14¾	13	16	15½	16	..	17¼	16½	17½	17	3,500
Raymond and Ely, g. s.	Nev.	5,000	3,000,000	30,000	100	540,000	Dec.	1876	1 00	3,075,000	Sept.	1873	3 00	..	..	..	..	..	..	..	7⅞	7¾	..	..	..	..	400
St. Joseph, L.	Mo.	2600 acs.	1,000,000	100,000	10	....	.....	.....	.....	250,000	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Santiago, g. s.	Nev.	2,000	11,200,000	112,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Savage, g. s.	Nev.	800	11,200,000	112,000	100	3,408,500	Sept.	1877	1 00	4,460,000	June	1869	3 00	..	8⅛	..	..	..	8½	..	8⅜	8¼	8¼	..	8⅜	..	700
Seaton, g. s.	Colo.	1,700	500,000	50,000	10	*	.....	.....	.....	10,000	May.	1877	0 10	12	1.05	..	..	..	..	..	:½	1¼	..	..	..	..	900
Seg. Belcher. g. s.	Nev.	160	640,000	6,400	100	244,800	Apr.	1876	5 00	....	.....	.....	.....	..	..	..	..	..	..	..	26¼	26	..	..	..	..	150
Sierra Nevada g. s.	Nev.	3,650	10,000,000	100,000	100	1,800,000	Oct.	1877	0 50	....	Jan.	1871	1 00	..	..	..	..	..	..	..	3⅜	..	..	..	..	..	100
Silver City, g s	Nev.	3,900	6,310,000	63,100	100	15,775	Nev.	1876	0 25	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Silver Hill, g. s.	Nev.	5,400	5,400,000	54,000	100	972,000	July.	1877	1 00	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
South Comstock, g. s.	Nev.	1,500	10,000,000	100,000	100	54,000	Jan	1877	0 25	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
South. California, g. s.	Nev.	1,500	5,000,000	50,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Southern Star. g. s.	Nev.	1,500	6,000,000	600,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Trenton, g. s.	Nev.	..	10,000,000	100,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Union Cons., g. s.	Nev.	850	10,000,000	100,000	100	285,000	Oct.	1877	25	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
West Belcher, g. s.	Nev.	1,000	10,000,000	100,000	100	....	.....	.....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Yellow Jacket, g. s.	Nev.	1,200	12,000,000	120,000	100	1,198,000	Sept.	1877	2 00	2,184,000	Aug.	1871	2 50	..	8	..	..	..	9¾	..	8¾	8⅝	..	..	..	..	700
Young America, s.	Nev.	1,000	3,000,000	30,000	100	6,000	Oct..	1876	0 20	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Copper Stocks.																											
Allouez, c	Mich	..	1,000,000	20,000	50	940,000	May.	1876	5 00	....	.....	.....	.....	..	....		....		....		....		....		....		....
Calumet & Hecla, c.	Mich.	..	2,000,000	80,000	25	1,200,000	.....	.....	.....	11,850,000	Aug.	1877	5 00	20	....		....		....		....		....		....		....
Central, c	Mich.	..	500,000	20,000	25	100,000	June	1862	0 65	1,160,000	Feb.	1877	7 00	28	....		....		....		....		....		....		....
Copper Falls, c	Mich.	..	1,000,000	20,000	50	535,000	May.	1876	.....	100,000	Nov.	1871	1 00	..	....		....		....		....		....		....		....
Dana, c	Mich.	..	500,000	20,000	25	68,000	Jan..	1863	0 50	....	.....	.....	.....	..	....		....		....		....		....		....		....
Dawson, s	Ont.	..	1,200,000	60,000	20	....	.....	.....	.....	....	.....	.....	.....	..	....		....		....		....		....		....		....
Duncan, s	Ont.	..	1,200,000	60,000	20	75,000	July.	1876	41⅔	....	.....	.....	.....	..	....		....		....		....		....		....		....
Franklin, c	Mich.	..	500,000	20,000	25	360,000	June	1876	5 00	585,000	Nov.	1871	1 00	..	....		....		....		....		....		....		....
Humboldt, c	Mich.	..	500,000	20,000	25	100,000	Sept.	1876	0 15	....	.....	.....	.....	..	....		....		....		....		....		....		....
International, s	Ont.	..	1,200,000	60,000	20	....	.....	.....	.....	....	.....	.....	.....	..	....		....		....		....		....		....		....
Madison, c	Mich.	..	500,000	20,000	25	123,000	Sept.	1876	0 10	....	.....	.....	.....	..	....		....		....		....		....		....		....
Mesnard, c	Mich.	..	500,000	20,000	25	160,000	Apr.	1876	0 50	....	.....	.....	.....	..	....		....		....		....		....		....		....
Minesota, c	Mich.	..	1,000,000	20,000	50	436,000	June	1869	1 00	1,820,000	Mar.	1876	0 50	..	....		....		....		....		....		....		....
National, c	Mich.	..	500,000	20,000	25	195,000	Oct..	1875	1 00	360,000	Oct..	1873	1 00	..	....		....		....		....		....		....		....
Osceola, c	Mich.	..	1,000,000	40,000	25	880,000	May.	1876	2 00	....	.....	.....	.....	..	....		....		....		....		....		....		....
Petherick, c	Mich.	..	500,000	20,000	25	165,533	Mar.	1876	0 50	....	.....	.....	.....	..	....		....		....		....		....		....		....
Pewabic, c	Mich.	..	500,000	20,000	25	185,000	June	1868	3 00	460 000	July	1873	1 00	..	....		....		....		....		....		....		....
Phœnix, c	Mich.	..	1,000,000	20,000	50	817,500	Sept.	1870	3 00	20,000	Jan.	1876	1 00	..	....		....		....		....		....		....		....
Quincy, c	Mich.	..	200,000	20,000	10	....	.....	.....	.....	2,130,000	Feb.	1877	4 00	..	....		....		....		....		....		....		....
Ridge, c	Mich.	..	500,000	20,000	25	200,000	.....	.....	.....	90,000	Feb.	1875	1 00	..	....		....		....		....		....		....		....
Rockland, c	Mich.	..	500,000	20,000	25	495,000	Jan..	1874	1 00	....	... .	....	.....	..	....		....		....		....		....		....		....
Star, c	Mich.	..	500,000	20,000	25	265,000	Mar.	1876	0 50	....	.....	.....	.....	..	....		....		....		....		....		....		....
Superior, c	Mich.	..	500,000	20,000	25	340,000	Mar.	1874	0 25	....	.....	.....	.....	..	....		....		....		....		....		....		....

g. Gold. s. Silver. L. Lead. c. Copper. * Non-Assessable.

Total Assessments levied to date..... $46,956,310
Total Mining Dividends disbursed to date..... 125,956,084

Total Sales of coal stocks for the week..... 198,811 shares.
Total Sales of Mining Shares for the week..... 101,500 do

delinquent Nov. 29th. Black Hawk Mining Co., 25c. per share, delinquent Nov. 15th. San Jose (Scott River, Cal.), $10 per share, delinquent Nov. 27.

The North Bloomfield Gravel Mining Co., of California, has declared a dividend of $1 per share, amounting to $50,000.

New York Mining Co.—The annual meeting of this company will be held Nov. 5th.

Gas Stocks.

NEW YORK, FRIDAY EVENING, Nov. 2, 1877.

Gas stocks are somewhat firmer, and in many instances we materially advance the quotations.

The New York and Manhattan Companies have each declared dividends of 5 per cent., payable on demand. The stockholders of these companies will receive $400,000 as the result of this announcement. We note a decline of $7.50 per share in the stock of the Municipal Gas Co.

The Springfield (Ill.) Gas Supply.—The city council of Springfield, Ill., have opened bids for lighting the city, and report that the new gas company offers to furnish gas at $2.24 per thousand feet, or light the street lamps for $19.50 per annum each. The council rejected the bid and will advertise again for proposals.

The Alton (Ill.) Gas Company wants to renew its contract with the city at $4 per thousand feet, but the people object.

La Salle, Ill., Gas Question.—The Common Council of this city refuses to pay more than $3 per thousand feet for gas used in the street lamps, and the local gas company refuses to light the street lamps.

Harlem Gas Co.—We note a recent auction sale of seventy-nine shares of the stock of this company at $99 per share.

San Francisco Gas Co.—We note recent sales of about 250 shares of the stock of this company at from $10 1½ to $102½ per share, quite a decline.

Lighting the Streets of Sacramento, Cal.—The *Record-Union* of the 22d ult. says: "The Board of City Trustees yesterday opened the proposals received for lighting 320 street lamps, more or less, for four years from the 20th of next December. Therewere but two bids—one from the Capital Gas Company of this city, and the other from the Globe Gaslight Company of California, doing business at San Francisco. The former, which is now receiving $3.75 per lamp per month, without cleaning or repairing, offered to take the contract for $4.35 per lamp, which is just the cost of lighting—60 cents per lamp—added, undertaking also to attend to the matter of repairs and cleaning. They state that they cannot perform the service at the old price without losing money. The other company, which furnishes a naphtha lamp of the kind now in use for street lighting at San Jose and Napa, and also for illuminating the yards, etc., at San Quentin—from all of which places testimonials as to their excellence were presented to the Trustees—offered to attach their burners to the present street lamps and perform all the service called for in the specifications for $3.40 per lamp per month. The Board took the proposals under advisement, and will presently visit San Jose to judge for themselves as to the efficiency of the Globe Company's system. In case the latter should prove to be satisfactory, the city will save about $10,000 in the four years by adopting it."

Syracuse, N. Y., is supplied with gas for public use at $2 per 1,000 feet.

Alleghany City, Pa., is supplied with gas at $1.40 per 1,000 feet.

People's Gas Light & Coke Co., Chicago.—Coupons on the bonds of this company are due.

Yonkers New York Gas Light Co.—Coupons on the bonds of this company are payable during the present month.

The following list of Companies in New York and vicinity are corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas stocks, No. 30 Broad street, N. Y.

Companies in New York and vicinity.	Capital Stock.	Par.	Dividends. Rate per an.	Dividends. Am. of last.	Dividends. Date of last.	Quotat'ns Bid.	Quotat'ns As'd
	$						
Mutual, N. Y.	5,000,000	$100	10%	2½	Oct. '77	90	93
" Gold Bonds	90,000	1,000	7%	3½	Feb. '77	100	103
N. York "	4,000,000	....	10%	5	Nov '77	123	125*
Metrop. "	2,500,000	100	10%	5	June '77	130	132½
" " Certf.	1,000,000	....	7%	3½	" "	100	103
" " Bonds	500,000	1,000	7%	3½	" "	102	—
Harlem "	1,850,000	50	8%	3½	Aug. '77	90	95
Manhat. "	4,000,000	50	‡	5	Nov '77	199	202*
Brooklyn, B'klyn.	2,000,000	52	15%	5	July '77	165	175
Nassau, "	1,000,000	25	‡	4	July '77	70	75
" " Certf.	700,000	1,000	7%	3½	July '77	98	101
People's, "	1,000,000	10	‡	3½	July '76	30	45
" " Certf.	300,000	1,000	7%	3½	July '77	80	85
" " B'ds	325,000	....	7%	3	Feb. '77	96	100
Metrop. "	1,000,000	10	5%	2½	May '77	67½	72
Wmsb'rg "	1,000,000	50	10%	2½	July '77	115	122½
" " Certf.	1,000,000	....	7%	3½	July '77	100	102
Citizen's "	1,200,000	20	‡	4	Jan. '77	79	85
" " Certf.	320,000	1,000	7%	3½	Oct. '77	97	100
J. C., N. J.	750,000	20	10%	5	July '77	160	—
Cent. Westch. N. Y	466,000	50	7%	4	July '77	80	90
Subur'n "	295,000	50	7%	3½	Oct. '77	—	95
Municipal, N. Y.	1,500,000	100	.....	.....	.....	70	72½

*Ex-Dividend of 5 per cent.

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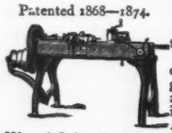

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